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Hiroyuki Aman, Wendy Beekes and Philip Brown

The Department of Accounting and Finance
Lancaster University Management School
Lancaster LA1 4YX
UK

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Hiroyuki Aman[a]
Wendy Beekes[b*]
Philip Brown[c]

[a]Hiroyuki Aman, Faculty of Economics, Konan University, 8-9-1 Okamoto, Higashinada-ku, Kobe, Japan, 658-8501, Japan, Tel: +81-78-435-2398, Email: aman@center.konan-u.ac.jp

[b]Wendy Beekes, Department of Accounting and Finance, Management School, Lancaster University, Lancaster, LA1 4YX UK. Tel: + 44 (0) 1524 593623. Fax: + 44 (0) 1524 847321. Email: w.beekes@lancaster.ac.uk

[c]Philip Brown, Australian School of Business, The University of New South Wales, NSW 2052, Australia; and Business School, The University of Western Australia (M250), 35 Stirling Highway, CRAWLEY WA 6009, Australia. Tel. +618 64882899. Email: philip.brown@uwa.edu.au

[*]Corresponding author

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ABSTRACT

We investigate the effect of corporate governance on corporate transparency in Japan, as indicated by the richness of the information environment for Japanese companies. We focus on firms' disclosure frequency, properties of analysts' forecasts and the speed of price discovery as indicators of corporate transparency. We find corporate governance in Japan is associated with increased disclosure and greater analyst following, but not more timely price discovery. In further analysis, we confirm board structure and composition are important factors influencing the firm's level of disclosure and its analyst following, as in Western countries. However, analysts appear to be more optimistic about Japanese firms with better board structures when forecasting future performance. Compensation structures and the level of directors' share ownership are other factors influencing the accuracy of analysts' earnings forecasts. In contrast, outside ownership by foreign investors has little influence. Our results are consistent with the view that traditional Japanese corporate groupings and cross-shareholdings provide a strong motivation for disclosure through monitoring and enforcement. Our results show Western style corporate governance has a large role to play in disclosure by Japanese firms, but traditional Japanese structures are still important to corporate transparency.

JEL classification: C26, G34, G39

Keywords: Corporate governance, Firm disclosure, Timeliness, Analyst forecast properties, Japanese listed companies

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1. Introduction

In Western economies, a variety of codes of practice provide guidance for good corporate governance (CG) in listed companies. For example companies listed on the London Stock Exchange must comply with the *Combined Code*, which advocates a 'comply or explain' regime for CG (Financial Reporting Council, 2010). Companies listed on the Australian Securities Exchange must disclose how closely they have followed the *Corporate Governance Principles and Recommendations*, providing reasons for deviations in their firm's practice in disclosures (Australian Stock Exchange, 2007). Such CG guidance focuses on the need for a firm to disclose value-relevant information to keep capital market participants up-to-date and also the importance of appointing non-executive or outside directors for effective monitoring of the firm's activities. Similar guidance is provided to companies listed on the Tokyo Stock Exchange (TSE) through the *Principles of Corporate Governance for Listed Companies* (TSE, 2004). In contrast to other stock exchanges however, there is no compulsion on Japanese companies to disclose information on their compliance or otherwise with the TSE governance guidance. In this sense, the TSE's guidance is voluntary.

Good CG is important for Japanese firms, particularly with changes to corporate financing arrangements, the increased globalisation of business and greater foreign ownership of Japanese firms witnessed in recent years. Since the banking crisis in the 1990s and the subsequent deregulation of the market, large firms have tended to use the capital market to obtain additional funding, rather than additional bank borrowing as traditionally has been the case. Post-deregulation, the influence of banks on corporate activities may well have declined, along with incentives for banks to closely monitor their corporate customers (Ahmadjan, 2000). At the same time, foreign ownership of Japanese firms has increased and cross shareholdings have been reduced, resulting in more diverse ownership structures and additional expectations in terms of governance structures, transparency and disclosure.

Changes to internal governance structures can be costly, involving the appointment of additional directors to the board for example. Owners must be convinced of the extra benefits to adopting different CG structures from those which currently exist within the firm. Prior evidence on the link between CG and a firm's stock returns is mixed: over the period 1999 – 2004, shares in Japanese firms with 'better' CG features were found to outperform other Japanese firms' shares by up to 15 percent per annum (Bauer *et al.* 2008). In contrast, using an index constructed from Nikkei Economic Electronic Databank System's Corporate Governance

Evaluation System (NEEDS-CGES) data, Aman and Nguyen (2008) find a negative association between CG 'quality' and firm performance between 2000 and 2005. They attribute the greater realised returns on relatively poorly-governed firms to compensation for the greater risk borne by their shareholders.

We investigate whether CG has a significant bearing on firms' disclosure policies and corporate transparency in Japan. Increased disclosure enhances the ability of external parties to monitor the firm and has the potential to attract external investors and lower the cost of finance, which have become more important following the collapse of the 'financial bubble' in the late 1980s (Singleton and Globerman, 2002). The Tokyo Stock Exchange (TSE) has taken the position that firms with better CG will adopt more timely *and* accurate disclosure policies. A firm's disclosures are important for ensuring desirable levels of corporate transparency and communication with investors, although Japanese business has not traditionally been associated with high levels of firm transparency. The CG structures typical of many Japanese firms may in fact inhibit disclosure. For example, corporate boards are usually dominated by inside directors (Buchanan, 2007), and some firms have complex cross-shareholding arrangements or large shareholdings by banks which may provide incentives for retaining information within the corporate grouping (Hiraki *et al.* 2003). More diverse ownership structures and reduced influence of the main bank (Mizuno and Tabner, 2009) provide incentives for greater disclosure and transparency, as firms attempt to attract more outside investors.

We use a 'three-pronged' approach to examine the influence of CG on the firm's transparency. First, we examine the volume of corporate disclosures, proxied by the number of documents released to the TSE. Second, we evaluate the level of analyst following and properties of analyst forecasts, with the expectation that firms with better CG are more transparent and make more credible disclosures, which result in a larger analyst following and more accurate forecasts. Third, we investigate the speed of price discovery (i.e. how quickly annual earnings information is reflected in prices over the year) which, following Beekes and Brown (2006), we describe as the timeliness of price discovery.

To measure CG quality, we use data from NEEDS-CGES, which evaluates CG in a 'Western style'.[1] This is a detailed dataset of CG in Japanese firms, updated on an annual basis from company financial reports. We use three component measures: (1) the board of directors' size and composition (*Board Organization*), (2) the board's compensation and incentive structure

[1] Although our governance indices are coded increasing in governance quality according to Western principles, we make no presumption on whether the Western style of CG is in any sense 'better' than traditional Japanese governance structures. Some may even argue that the Enron and WorldCom debacles show that Western styles of governance are relatively ineffective. We use the 'quality' of a firm's CG, as shorthand for the firm's CG characteristics being scored more highly according to the measurement rule provided by CGES.

(*Board Behavior*), and (3) the firm's external ownership structure (*Ownership*). These CG measures are described in more detail in section 3.1.

We extend the CG and disclosure literature by providing evidence for Japanese firms, which offer insights from a governance environment different from Western economies such as the UK, Australia, Canada and U.S.A. We evaluate overall CG and its component parts, to identify which aspects of CG have more influence on disclosure in Japan. Specifically, we investigate whether the size of the board and its composition are important for effective monitoring in Japanese firms, by virtue of their influence on the firms' disclosure policies. We also provide evidence on the roles of directors' ownership and incentive schemes. In addition, we investigate how the unique ownership structure of Japanese firms affects disclosure and its informativeness. Our work therefore contributes to a growing literature examining the CG of Asian firms (for example, Aman and Nguyen, 2008; Bauer *et al.* 2008; Kim *et al.* 2010; Kusnadi, 2011). Finally, we extend earlier research by Beekes and Brown (2006), by exploring instrumental variable (IV) methods to control for potential endogeneity in relationships between CG and corporate transparency, since Ordinary Least Squares (OLS) regression methods yield biased parameter estimates when explanatory variables are endogenous.

Our primary finding is that firms with better CG, as measured by CGES, release more information to the TSE and have a larger analyst following. However, the transparency of such disclosures is called into question as analysts' forecasts tend to be optimistically biased for firms with better internal board structures. The existence of directors' ownership and long-term incentives, along with greater outside ownership, are associated with more accurate forecasts. There is also less timely price discovery for better-governed firms, contrary to our initial expectations.

The remainder of our paper is organised as follows. Section 2 outlines CG structures in Japan and the motivation for our study. Section 3 outlines the data and method used. Section 4 discusses the results; and section 5 concludes the paper.

2. Corporate Governance in Japan

Ownership structures of Japanese firms and their control mechanisms can differ significantly from those in Western countries. This section outlines the main differences in terms of the board of directors and the corporate groupings, which have a bearing on our measure of CG and the results from our study.

2.1 The board of directors in Japan

The Commercial Code provides the basis for CG in Japan, where a company may choose between the Corporate Auditor system and the Committee System (TSE, 2004). In the Corporate Auditor System, supervision and administration of the firm's activities are the responsibility of the Board of Directors and the Board of Corporate Auditors. The Board of Corporate Auditors is legally separate from the management of the firm and plays a similar role to independent directors in Western countries. The Board of Corporate Auditors must comprise at least three members, of which a majority should be outside auditors (e.g. they cannot have been an employee, officer or director in the company or its subsidiaries) and at least one corporate auditor must be full time. Their role is to undertake compliance audits on whether the firm has complied with relevant laws and procedures, and audit the financial statements. Corporate auditors are required to attend the meetings of the board of directors and liaise with the internal audit departments and external auditors. Firms following the Corporate Auditor System are not required to have any outside directors, although they may choose to do so.

The Committee System is similar to governance structures found in the U.S.A. or U.K. It requires firms to have committees for audit, nomination and remuneration that fulfil a supervisory role for the board of directors (TSE, 2004). Each committee must comprise a *minimum* of three members, a *majority* of whom should be outside directors. The only requirement for an outside director is that they should not be an executive of the company or its subsidiaries at present or have been one in the past. Companies following the Committee System are required to appoint one or more executive officers, including one representative executive officer (i.e. Chief Executive Officer). This arrangement is intended to strengthen the separation between monitoring and management, but this could be undermined by the ability of a director to also serve as an executive officer.[2] A recent survey by TSE showed only three per cent of TSE First Section companies adopted the Committee system (TSE, 2007). Buchanan (2007) suggests a potential explanation for the slow take-up of the Committee System may be that senior directors value prior experience and are less likely to wish to appoint outside directors since they do not possess internal knowledge. Due to the small number of firms adopting this system, we focus on firms which follow the alternative Corporate Auditor System.[3]

Unlike many firms in the West, where outside directors are often a majority of the board, the board of directors in Japanese firms is typically dominated by insiders. There are on average

[2] Directors may concurrently serve as executive officers of the company, which means an executive officer could be a member of the nomination or remuneration committee, but not the audit committee (TSE, 2007).
[3] In robustness testing we include the firms following the Committee System of governance; they were excluded from our main analysis. Our results were qualitatively unchanged by the inclusion of these additional firms.

8.99 (9.66) directors on the board of all (First Section) listed TSE companies and the average number of outside directors is 0.8; on average there are "1.91 outside directors for companies which [have taken the decision to] elect outside directors" (TSE, 2007: 15). While almost all firms in the TSE-First Section follow the Corporate Auditor System, over 40 per cent have appointed outside directors to the board. According to TSE (2007), over a quarter of outside directors originate from a parent or affiliated company, suggesting some outside directors in Japan are not truly 'external' monitors of their firms' performance. Given these circumstances, it is an open question whether board composition is an effective CG mechanism in Japanese firms, and we specifically investigate this question in our analysis of the components of CG.

2.2 The Japanese corporate group

Firms in Japan may be part of large corporate groupings or *keiretsu*. The member firms of industrial keiretsu have large ownerships by dominant or affiliated companies, and complex cross-shareholding arrangements which may include main banks as block shareholders. In keiretsu, firms transact with each other and sometimes board members originate from an affiliated company. A TSE survey in 2007 showed 13.2 per cent of TSE-listed firms had outside directors who originated from an affiliated company and 19.8 per cent had an association with a major shareholder. These closely-tied and multi-faceted relationships facilitate information sharing among member firms in the group and enable monitoring of member firms' activities, resulting in reduced information asymmetry between management and shareholders (Hoshi *et al.,* 1991; Kaplan and Minton, 1994; Douthett and Jung, 2001).

Within the keiretsu the *main bank* plays a significant governance role; it acts as monitor of a member firm's activities and holds equity in that firm, as well as providing loans to it (Hiraki *et al*., 2003). This relationship may improve firm value as it resolves elements of the conflict of interest between creditors and shareholders and provides incentives for monitoring. For example, when a firm performs poorly, a main bank relationship makes CEO turnover more likely. Also, Kang and Shivdasani (1995) and Basu *et al.* (2007) find member firms have lower average top executive pay. In addition, employees of the main bank may be appointed to the investee's board (Morck and Nakamura, 1999), which further alleviates information asymmetry between firm's management and the bank.

However keiretsu may entrench management and insulate them from external monitoring. Lichtenberg and Pushner (1994) provide evidence confirming this possibility, suggesting corporate ownership impacts negatively on firm productivity and profitability. Similarly, Hiraki *et al.* (2003) find cross-shareholdings lead to lower firm valuation. The size of the stake the bank

holds as a creditor of the firm may enable the bank to influence the borrower's priorities. For example, it could result in the borrower investing in low risk projects that increase the value of debt holders' claims but reduce overall firm value, or the bank may expropriate any surplus by charging excessive interest rates (Morck *et al.*, 2000).

The specific CG structures found in Japan may promote better disclosure due to the high level of monitoring provided within the corporate grouping (Douthett *et al.,* 2004). On the other hand, information sharing with large shareholders may reduce the managers' incentives to provide information to the market (Covrig and Low, 2005). However, Cooke (1996) fails to find a significant association between keiretsu and disclosure. In recent times, keiretsu ties have not been as strong and therefore incentives to monitor group companies have become weaker (Ahmadjan, 2000). Another open question is the extent of any additional disclosure resulting from the firm being a member of a corporate grouping.

3. Method

The guidance for CG issued by the TSE has five key principles. They include the rights and equitable treatment of shareholders, relationships with stakeholders, disclosure, and the responsibilities of boards of directors and of auditors (TSE, 2004). In order to protect the rights of shareholders, disclosure of information on a timely basis is considered important. Principle 4 states "CG for listed companies should ensure that timely and accurate disclosure is conducted on all material matters including the financial condition, performance results and ownership distribution" (TSE, 2004: 11). We specifically examine whether this principle translates into increased disclosure and transparency for Japanese firms with better CG.

3.1 Measuring corporate governance

The evaluation of firms' CG is conducted annually from 2004 to 2007. Our measure of CG focuses on three components (*Board Organization; Board Behavior*; and *Ownership*) which are formed from underlying variables using a scoring system prescribed by NEEDS-CGES. In this system the raw firm-level data for each variable are given a score of between 1 and 5. Some variables are reverse coded in the scoring system to ensure all measures are increasing in CG quality. For each component sub-index, individual variables for a firm are scored and then a weighted average score is calculated using the weightings provided by CGES. From these aggregate indices, we then divide the aggregated scores into deciles and convert this into a discrete score of 1 to 10, with higher values being associated with better CG. We examine each

of the three measures separately as well as an overall measure (*CG Composite*) which is a simple additive measure of the three sub-measures.

Board organization incorporates the size, structure and composition of the board of directors as well as whether board committees exist. This measure associates smaller boards with more efficient decision making (Yermack, 1996), and firms that have more outside directors with better monitoring of the firm's activities (Beasley, 1996). Where a majority of directors concurrently hold the position of executive officer of another company (i.e. interlocking directors), CG in the firm is considered weaker. Thus firms that score highly on *Board Organization* tend to have smaller boards, with fewer affiliated and interlocking directors. *Board Behavior* incorporates the level of directors' share ownership (in monetary value and percentage of total shares in issue) and the long term remuneration incentives adopted by the firm. Firms scoring highly on this measure have greater director share ownership and adopt long-term incentive plans such as stock options. *Ownership* measures the level of ownership by outside parties as a proxy for the level of monitoring they provide. This index assigns greater weight to institutional and overseas investors, and less weight to small investors because the latter are less efficient monitors. Companies without dominant company ownership are considered to have better CG and ownership by group companies not expected to be in the best interests of other shareholders (Jiang and Kim, 2004). This measure also takes stable shareholdings into account, with lower percentages of stable shareholding being assigned a higher score.[4] Firms scoring highly on *Ownership* have greater ownership by external shareholders and lower ownership by affiliated shareholders.

3.2 Estimators

Our research design builds on the earlier work of Beekes and Brown (2006), adapting measures and research design to incorporate panel data and Two Stage Least Squares (2SLS) regression methods. We begin by analysing the number of documents released by the firm to the TSE. We then investigate the level of analyst following and the properties of analysts' consensus EPS forecasts (specifically bias, accuracy and disagreement in consensus forecasts), based on the premise that firms with better CG release more precise and more credible disclosures. Finally we investigate the timeliness of information discovery in prices. We estimate our models using robust standard errors clustered by firm to control for

[4] Stable shareholding includes domestic companies with a cross-holding relationship, insurance companies, commercial banks, publicly-held companies for financial institutions, publicly-held affiliated companies (parent company etc.), officers' shareholding, shareholding associations, treasury stock, and corporate block holdings of three per cent or more of issued share capital.

heteroskedasticity and within-firm correlation in the error term. In addition, we implement 2SLS regression methods, where appropriate, to control for potential endogeneity in CG. We routinely report results from an endogeneity test, which tests the hypothesis that the CG measures used in our models are exogenous. [5]

In 2SLS estimations we use an instrument which is expected to be correlated with the endogenous variable but uncorrelated with the error term. For a discussion of issues in choosing appropriate instruments for CG, see Brown *et al.* (2011). For each measure of CG (*CG overall*, *Board Organization*, *Board Behavior* and *Ownership*), the mean value for the firm's industry that year is used as the instrument. This instrument is chosen because, although we expect there to be similar CG expectations for firms in the same industry, we do not expect a direct relationship between the error term in our models and the average industry CG.

We do not detail the first stage estimates, but results from the Anderson-Rubin (1949) $\chi 2$ and Stock-Wright (2000) *S*-tests from the first stage estimations are reported in the tables. These tests assess the significance of the endogenous variables in the models being estimated and are robust to the presence of weak instruments. We also test for under identification, i.e. whether our instruments are correlated with the endogenous CG variables, using the LM Kleibergen-Papp χ^2 test where the null hypothesis is that the model is under identified. We also test for weak identification, i.e. where the instruments are only weakly correlated with our endogenous regressors using the Kleibergen-Papp Wald *F* test, where the null hypothesis is that the instruments are weak (Baum *et al*., 2007). The results from these tests are routinely reported in tables relating to 2SLS regressions.

3.3 The quantity of disclosure

To determine the impact of CG on the level of firm disclosure, we estimate the following model:

$$Log\ Docs_{it} = \beta_0 + \beta_1 CG_{it} + \boldsymbol{\gamma Control_{it}} + \delta Year + \varepsilon_{it} \quad (1)$$

where: *Log Docs* is the document count, measured as the natural log of the number of documents released by the company over the 365 trading days ending 14 days after the company's fourth quarter earnings report; *CG* is Corporate Governance (see section 3.1); Control is a set of control variables including Firm size, Volatility, Good News and Industry. *Size is* proxied by the natural log of the firm's market value of equity measured at the end of the prior financial year; *Volatility*

[5] The endogeneity test has a chi-square distribution with degrees of freedom equal to the number of variables tested. Under the null hypothesis, the variables identified as being potentially endogenous may be treated as exogenous variables. The test is described in Baum *et al.* (2007).

is the standard deviation of daily market-adjusted returns over the 90 day period immediately prior to the period over which the document count is computed; *Good News* is a dummy variable equal to 1 when the company's share price outperforms the market over the 365 calendar days ending 14 days after the release of earnings, and 0 otherwise; *Lead Industry* is equal to 1 if the firm is in the electric and electronic equipment, or motor vehicles and auto parts industries, and 0 otherwise[6]; Year is a set of year control variables; *i* and *t* are firm and year subscripts respectively; and ε is the error term.

Equation 1 is estimated first with *CG Composite* as the measure of CG. We expect firms with better CG to be associated with greater disclosure, as reflected in a positive coefficient on CG. In addition to examining an overall measure of CG, we estimate the impact of three specific components of CG (*Board Organization, Board Behavior* and *Ownership*) on the quantity of disclosure. Prior research findings on the influence of board structures on disclosure are mixed. Eng and Mak (2003) find an inverse relationship between the presence of outside directors and firm disclosure, suggesting a substitution relationship between governance and disclosure. On the other hand, greater involvement of outside directors could facilitate more effective monitoring of management, leading to better disclosure (Ajinkya *et al.,* 2005; Beekes and Brown, 2006) and lower information asymmetry (Kanagaretnam *et al.,* 2007). Given the focus of the TSE on transparency, we expect a positive association between *Board Organization* and *Log Docs*.

Share ownership by directors is perceived to positively align the interests of shareholders and directors (Jensen and Meckling, 1976) and may increase firm valuation (Morck *et al*. 2000; Chen *et al.*, 2003). Managerial ownership has been shown to positively influence the informativeness of earnings (Warfield *et al.,* 1995). Japanese firms were not permitted to issue stock options until May 1997, although they are generally viewed positively by the stock market, as indicated by positive abnormal stock returns around the announcement date of option plans instituted by Japanese firms between 1997 and 2001 (Kato *et al.,* 2005). However, entrenchment may be an issue with managerial ownership and there could be incentives to retain information within the organization for personal profit, particularly if options are held.[7] Eng and Mak (2003) find evidence of an inverse association between managerial ownership and voluntary disclosure, suggesting governance is a substitute for disclosure. However, in line with the TSE guidance,

[6] This dummy variable captures a number of large, high-tech companies which operate globally, for example, Toyota and Sony.

[7] Chen *et al.* (2003) find evidence of a monotonic increasing relationship between firm performance and managerial ownership in Japanese firms between 1987 and 1995. However, their study relates to a period prior to the introduction of stock options in Japan.

we expect the relationship between CG and disclosure to be complementary, and predict a positive association between the *Board Behavior* and *Log Docs*.

Douthett and Jung (2001) suggest there is greater earnings informativeness in firms that are members of keiretsu due to the greater monitoring of their activities. Alternatively, this closely-tied relationship may promote information sharing within the group *only*, which insulates management from monitoring by external parties. Prior evidence is mixed: Cooke (1996) finds no evidence of lower disclosure where there is a main bank or keiretsu arrangement, whereas later studies by Covrig and Low (2005) and Jiang and Kim (2004) conclude such relationships are associated with less information transparency.[8] The typical argument for firms to disclose information is to lower the cost of capital (Botosan, 2000), but if the firm has a financing relationship with a main bank, there may be less need to disclose information on a timely basis. Given the reduced influence of keiretsu and main banks in more recent times, we expect monitoring by external shareholders will be important in determining the firm's disclosure policies and predict a positive association between outside *Ownership* and *Log Docs*.

In order to control for other incentives to disclose information, we include variables to capture *Good News* and firm size (*Size*) due to the typically positive association of good performance and firm size with disclosure (Lang and Lundholm, 1993). We control for firms in the electronic and electronic equipment, and motor vehicles and auto parts industries *(Lead industry)* as these firms engage more in research and development, implying less incentive for firm disclosure due to higher proprietary costs (Verrecchia, 1983). We also control for stock return volatility as greater volatility could result in additional disclosures due to investors' demand for information, as there is greater uncertainty in predicting performance for such firms.

3.4 Analysts' forecasts

Next we examine the level of analyst following and properties of analysts' forecasts as proxies for the amount of information available to investors in the market. We estimate the following models to examine the properties of analysts' earnings forecasts:

$$Following_{it} = \beta_0 + \beta_1 CG_{it} + \boldsymbol{\gamma Control_{it}} + \delta Year + \varepsilon_{it} \quad (2a)$$

$$Disagreement_{it} = \beta_0 + \beta_1 CG_{it} + \boldsymbol{\gamma Control_{it}} + \delta Year + \varepsilon_{it} \quad (2b)$$

$$Bias_{it} = \beta_0 + \beta_1 CG_{it} + \boldsymbol{\gamma Control_{it}} + \delta Year + \varepsilon_{it} \quad (2c)$$

[8] Our measure of CG includes ownership by banks and cross-shareholdings which form part of a *keiretsu* relationship, but not the *keiretsu* itself. While we would prefer to control for all such relationships, we do not have access to data reliable enough to identify them.

$$Accuracy_{it} = \beta_0 + \beta_1 CG_{it} + \boldsymbol{\gamma Control_{it}} + \delta Year + \varepsilon_{it} \qquad (2d)$$

where: *Following* is the number of analysts contributing to the consensus forecast; *Disagreement* is the level of disagreement measured by the standard deviation across analysts' forecasts for that firm-month, deflated by the base price (i.e. share price a year before the announcement month); *Bias* is the signed Forecast Error (FE), with FE defined as the mean forecast EPS less EPS as reported by I/B/E/S, deflated by the base price; *Accuracy* is the absolute value of the FE, deflated by the base price; and Control is a set of control variables. The *Bias* and *Accuracy* models include *Following* and *Disagreement* as control variables, and the *Disagreement* model includes *Following* as a control variable. We also control for volatility, firm size, prior year forecast error, forecast horizon and industry. *Volatility* is calculated from daily returns in the 90 days ended the day before the Institutional Brokers' Estimate System (I/B/E/S) forecast date; *Size* is measured as the natural log of the firm's market value of equity a day before the I/B/E/S forecast cut-off date; *Prev FE* is last year's FE for the same firm and same forecast horizon, deflated by the previous year's base price; and *Horizon* is the forecast horizon, measured by the number of months from the forecast date until the company makes its annual earnings announcement to the TSE. Other variables are as previously defined.

The availability of information about a firm and the credibility of its disclosures are important to market participants and carry implications for the accuracy and precision of analysts' forecasts (Byard and Shaw, 2003). Kato *et al.* (2009) examine the properties of management earnings forecasts in Japan and find firms with a high level of insider ownership or poor performance make optimistically biased earnings forecasts early in the year. However, they conclude the market is not misled and management earnings forecasts are on the whole informative to investors. If better CG in Japanese companies is associated with greater transparency and more credible disclosures, we would expect better governed firms to attract greater analyst following, because a richer information environment provides a better basis for analysts' earnings forecasts (Healy *et al.*, 1999). We anticipate a positive sign on *CG composite* in model 2a and its components (*Board Organization*, *Board Behavior* and *Ownership*).

The level of forecast dispersion (*Disagreement*) is used to proxy for the level of consensus among market participants about a firm's expected performance. Greater amounts of information available to analysts when making their forecasts could reduce uncertainty and clarify their expectations, so that improved disclosure would be associated with greater consensus in forecasts (Brown and Han, 1992; Lang and Lundholm, 1996). However this release of additional information may instead encourage analysts to develop additional private

information, aspects of which may be weighted differently. In this case, greater disclosure could be associated with greater disagreement among analysts tracking a particular firm (Barron *et al.*, 2002a; Barron *et al.*, 2005). Douthett *et al.* (2004) find that forecast dispersion is much lower for Japanese firms with keiretsu ties, which they attribute to greater monitoring from the relationship. Given the conflicting views in the literature, we make no directional prediction for the influence of CG on *Disagreement* in model 2b, as additional disclosure may either increase or decrease consensus in analysts' opinions.

We anticipate market participants are better informed about better-governed companies, as proxied by analysts' forecasts. *Bias* in analysts' earnings forecasts may be positive (optimistic) or negative (pessimistic) and lower values of *Accuracy* indicate greater forecast precision. We therefore expect firms with better CG to be associated with a pessimistic forecast bias (i.e. a more conservative view of forecast EPS) and have greater accuracy (i.e. less absolute error), as reflected in a negative coefficient on *CG Composite* in both models 2c and 2d. Prior evidence from studies of Western countries shows a positive relationship between CG quality and forecast accuracy in Australia (Beekes and Brown, 2006) and also in the U.S. (Byard *et al.*, 2006; Behn *et al.*, 2008). We make the same prediction for *Board Organization* and *Board Behavior* as *CG Composite*. However, Douthett *et al.* (2004) find forecast accuracy is greater for firms with keiretsu ties, suggesting that the increased monitoring associated with these arrangements improves firm transparency and the predictability of EPS. If this were true, we would find a positive association between *Accuracy* and *Ownership* (as in our scoring of *Ownership,* firms with cross shareholdings and dominant owners would be coded as having weaker CG). Given that keiretsu ties have weakened in more recent times, we would anticipate other governance structures have become more influential in determining firm transparency. Consequently we predict a negative sign for *Ownership* (i.e. greater accuracy for firms with more external ownership).

We include controls for firm *Size* (larger firms tend to have greater analyst following as there is more information about them available in the market; Bhushan, 1989), for firms with earnings that are more difficult to predict (proxied by greater volatility) and for firms in industries with opaque earnings and a high research and development component (*Lead industry*) as this can incentivise analysts to generate additional idiosyncratic information, which could positively impact on forecast precision (Barron *et al.,* 2002b). Other controls are for forecast horizon i.e. the length of time until the earnings announcement (accuracy would be expected to improve nearer to the earnings announcement) and for the previous year's forecast error (which may

encourage analysts to collect additional information to improve the quality of their forecasts, Barron *et al.*, 2008).

3.5 The timeliness of disclosure

We investigate how quickly information relating to the end of year earnings is reflected in prices (*Timeliness*). To examine the timeliness of price discovery, we track stock price movements for 365 calendar days, ending 13 days after the release of the annual earnings (the 14th day is denoted 'day Φ').[9] *Timeliness* is measured as follows:

$$Timeliness = \frac{\sum_{t=\Phi-365}^{t=\Phi-1} |\ln(P_\Phi) - \ln(P_t)|}{365} \quad (3)$$

where: P_t is the daily market-adjusted share price.

Our measure specifically examines how quickly value-relevant information relating to the firm's annual earnings is incorporated into a firm's share price over the course of the year (i.e., the more quickly price converges on its value on day Φ). Smaller values of *Timeliness* are associated with faster price discovery. The following model is estimated:

$$Timeliness_{it} = \beta_0 + \beta_1 CG_{it} + \boldsymbol{\gamma Control_{it}} + \delta Year + \varepsilon_{it} \quad (4)$$

Control is a set of control variables that includes Firm size, Volatility, Good News and Industry. Variables are as previously defined. To acknowledge that the timeliness measure may be affected by idiosyncratic share price volatility (for a discussion, see Beekes and Brown, 2006), we also deflate *Timeliness* by one plus the absolute return over the period over which timeliness is calculated, denoted as '*Timeliness Deflated*'.

The TSE guidance asserts better CG leads to more accurate and timely disclosure of value-relevant information. Consistent with this assertion, if there is greater disclosure and this has greater credibility because it originates from a firm with better CG, we would expect information to be reflected in share prices on a more timely basis. Therefore we would expect a negative coefficient on *CG* in equation (4). We would anticipate larger firms to be associated with greater timeliness of price discovery, together with firms with good news. However for firms from industries with large research and development expenditures (*Lead Industry)* and firms with greater stock price volatility (*Volatility)*, we would expect less timely price discovery.

[9] Beekes and Brown (2006) measure timeliness in trading time. A calendar time approach is better suited to international comparisons because of differences across countries in the number of trading days in a calendar year.

3.6 Sample and data sources

Our initial sample comprises all First Section (i.e. largest) Japanese firms included in NEEDS CGES for the years 2004 – 2007.[10] The CGES evaluates CG of listed Japanese companies based upon disclosures in publicly available documents. We remove all financial companies from our sample as they have substantially different governance structures and different incentives for disclosure. We also exclude all companies which follow the Committee System (see section 2.1) to ensure all firms have similar governance systems in place.[11] We use two samples of data in our analysis: one for document count and timeliness models, and the other for the analyst forecast models.

To be included in the document count and timeliness sample, in addition to data for CG, we require document count data from Timely Disclosure Network (TD-Net) of the TSE and other firm-specific data from Nikkei Financial Quest.[12] Information on share prices and returns are sourced from Nikkei Japanese Stock Daily Return Data. We use annual earnings announcement dates from TD-Net, verified against dates sourced from Bloomberg, Institutional Brokers' Estimate System (I/B/E/S), NEED and Worldscope.[13] The final sample consists of 5,011 firm-year observations for the document count and timeliness models, comprising 1,411 unique firms. The annual size of our sample is 1,050 observations in 2004, 1,237 in 2005, 1,334 in 2006 and 1,390 in 2007.

For inclusion in the analyst sample, in addition to data for CG, we require data on analyst following and earnings forecast properties from I/B/E/S. I/B/E/S forecast data are on a monthly basis for annual EPS. To be included, there must be at least two analysts contributing to the forecast and the horizon must be between 1 and 11 months. The final sample for the analyst models comprises 15,124 monthly observations relating to 507 unique firms.

4. Results

4.1 Descriptive Statistics

XX TABLE 1 XX

[10] All corporate governance data are measured as at August of each year. We assume CG data in August of year *t* relates to financial results released during the previous 1 July (of year *t*-1) to 30 June (of year *t*) period.

[11] We include firms following the Committee System in robustness checks and note the results are similar.

[12] This captures both compulsory documents as well as voluntarily disclosed documents officially disclosed on the TSE. All the documents are officially assigned a three-digit classification code by TSE. If a disclosure document is assigned more than one classification code, each is separately counted to include multiple contents. Document releases include information on financial results, earnings and dividend forecasts and other disclosures about share capital, as well as voluntary disclosures.

[13] The identification of earnings announcement dates is a complex process in which we triangulate different sources of data. Where differences emerge between the data sources, we compare current year ends and adjacent financial year ends and examine the reporting lags. We then take the earliest plausible announcement date.

Table 1 shows the descriptive statistics and variable correlations for the document count and timeliness models. The number of documents (*Document count)* released per firm ranges from 7 to 240 over the year ending 14 days after the annual earnings release, with roughly 3 documents per month on average. This contrasts strongly with Beekes and Brown (2006) who report Australian firms release on average about 6 documents per month. This confirms our preconception that firms in Japan are generally less forthcoming with information compared with other countries. Timeliness ranges between 0.017 and 1.622, and from 0.014 to 0.853 when deflated by one plus the absolute rate of return (*Timeliness Deflated*). The average *Timeliness* (*Timeliness Deflated*) in Japan is 0.146 (0.112), compared with Australian firms in Beekes and Brown (2006) of 0.219 (0.145). Smaller values of timeliness are associated with a more timely price discovery and this suggests Japan has a more timely approach to recognising information in prices when compared with Australian firms. The market capitalisation of firms (*Size)* in this study ranges from ¥1.278 billion to ¥21,900 billion. Just under half the observations are taken from years where the company out-performed the market (*Good news* mean = 0.431). Our measures for *Board Organization*, *Board Behavior*, and *Ownership* range between 1 and 10, and have mean values of 4.623, 4.680 and 7.079 respectively.[14] *CG composite* ranges between 3 and 30, with a mean value of 16.382 by construction. About 14 per cent of observations in the timeliness and document count samples are from the electronic and electronic equipment, or motor vehicles and auto parts industries (*Lead industry* mean = 0.139).

The variable correlations in Panel B show that the CG measures are not highly correlated, providing some reassurance that the component capture different aspects of CG; the largest correlation is between *Board Behavior* and *Ownership* (r=0.256). The two timeliness measures are highly correlated (r = 0.88). All of the measures of CG are positively associated with the number of documents released (*Document count*) and timeliness (except for *Ownership* with *Timeliness Deflated*). These relationships are further examined in multivariate analysis.

XX TABLE 2 XX

Descriptive statistics and variable correlations for the analyst models are shown in Table 2. On average seven analysts contribute to the monthly consensus earnings forecast (*Following* mean = 7.287). Forecasts are optimistic on average and the mean forecast bias is 0.3 per cent of the base share price. Mean *Accuracy* (*Disagreement*) is 1.6 (0.7) per cent of the base share

[14] The average of Ownership is larger than the other components of CG since the scoring from 1 to 10 is assigned for firms listing on *all the markets* including TSE First Section. The higher Ownership score indicates outside shareholders of TSE First Section firms on average have larger holdings.

price. This compares favourably with data for Australian firms in Beekes and Brown's (2006) study, where mean *Accuracy* (*Disagreement*) is 6.9 (1.1) per cent of the base share price. This is also consistent with Hope (2003) who shows Japan to have lower mean forecast dispersion and forecast error compared with other countries. Volatility ranges from less than 1 per cent to 5.2 per cent per day, the average being 1.6 per cent. About 21 per cent of observations in the analyst sample are from the electronic and electronic equipment, and motor vehicles and auto parts industries *(Lead industry* mean = 0.211).

Variable correlations (Panel B) show an interesting pattern for CG. *CG composite* is negatively associated with *Bias*, *Accuracy* and *Disagreement* and positively with *Following*. Thus it seems that better-governed firms are associated with greater pessimism but greater accuracy overall, less disagreement and greater analyst following. *Board Behavior* and *Ownership* follow a similar pattern to *CG composite*. However, for firms with better *Board Organization*, there is a positive correlation with all analyst variables (i.e. forecasts are more optimistic and less accurate, and despite their greater analyst following, there is lower consensus among analysts). This could be due to the inability of analysts to determine the influence of outside directors on disclosures and analysts may overweight disclosures by firms with better *Board Organization*. We investigate these relationships between individual components of CG and analyst forecast properties further in multivariate analysis.

For all of our results we report standardised coefficients. The intercept term in each model is the mean of the dependent variable and for continuous variables the coefficient indicates the effect of a one standard deviation increase on the dependent variable. For binary variables, the coefficient indicates the effect of changing the category (from coded 0 to coded 1) of the independent variable. All regressions include year indicators to control for time-related effects and, in the analyst models, we also control for the length of forecast horizon to the announcement month.

4.2. Document Count Models

XX TABLE 3 XX

Table 3 shows the 2SLS results for the document count models. The chosen instruments for CG are robust according to the Stock-Wright and Anderson-Rubin tests, and the models are robust according to the LM and Wald versions of the Kleibergen-Paap (2006) test for under- and weak identification. We expect firms with better CG to be more transparent and more forthcoming with information to the stock market (i.e. to release more documents). Examining the document count model, we find a positive association between CG composite and the

number of documents released to the TSE (see Table 3, column 1). This is consistent with the Beekes and Brown (2006) study of Australian firms. We also find evidence of a positive association between disclosure, and firm size and volatility, consistent with larger firms and firms with more volatile stock prices releasing information more often to keep investors better informed. Firms in the electronic and electronic equipment, and motor vehicles and auto parts industries (*lead industry* = 1), which engage more intensively in research and development, make less frequent disclosures, as predicted.

Examining the component parts of CG, we find *Board Organization* and *Board Behavior* have a positive impact on disclosures (Table 3, column 2). This confirms our expectations that effective oversight of the board of the directors results in more disclosure and is aligned with the TSE's principle 4. Contrary to our expectation, the coefficient on ownership is negative and indicates increased outside ownership may lead to less disclosure, whereas affiliated ownership by dominant companies and cross-shareholdings may cause firms to disclose more often, consistent with Douthett and Jung (2001). However, we are unable to reject the null hypothesis of weak identification in this model, so our results for the component parts of CG must be interpreted with caution.

We conduct robustness tests using the Instrumental Variable Poisson estimation method to recognise our dependent variable is a count of the documents released to the TSE. Our results (not tabulated) do not change our conclusions: *CG Composite* is consistently positive (coefficient = 0.166, t = 10.31***), as is *Board Organization* (coefficient = 0.148, t = 3.58***) and *Board Behavior* (coefficient = 0.150, t = 7.98***). However, *Ownership* remains negative (coefficient = -0.241, t = -2.92***). Irrespective of the method of analysis used, the result for *Ownership* is consistent: higher levels of outside ownership are found among firms that make fewer disclosures. [15] In an attempt to examine this result more closely, we obtain data on bank ownership and re-do the analysis. The results are discussed in section 4.5.

4.3 Analyst models

XX TABLE 4 XX

To seek some additional insight into the quality of information available to the market, we investigate properties of analyst forecasts. Table 4 shows the results for the analyst models. For the analyst following and disagreement models, the chosen instruments for CG appear robust

[15] Our results in this section are robust to outlier deletion (deletion of cases in the top and bottom 1% of values for the dependent variable) and exclusion of volatility in model estimations. We also re-do our entire analysis with the inclusion of firms following the Committee System (the total number of observations is 5,152 in this analysis, an additional 141 observations) and again, our conclusions are unchanged.

according to the Stock-Wright and Andersen-Rubin tests and our models do not suffer from weak or under identification. CG has a positive association with analyst following (Table 4, column 1). On average seven analysts are tracking a firm, and eight when there is a one standard deviation increase in composite CG quality. Analyst following is also greater for larger firms, for firms with more volatile share prices and for firms in the high tech sector (*Lead Industry*). When investigating the individual components of governance (Table 4, column 2), *Board Organization* and *Board Behavior* are positively associated with analyst following. Therefore internal governance structures, and the directors' ownership and compensation schemes in place, appear to be important factors influencing analysts' decision to track a company. However, contrary to expectations, we find no relationship for *Ownership*.

With regard to the level of disagreement, there is a negative association between *Disagreement* and CG (Table 4, column 3). That is, analysts tend to agree more on the firm's forecasted EPS when it is better-governed CG. This contrasts strongly with Beekes and Brown (2006) who find analysts have more divergent views for Australian firms with better CG. As discussed earlier, idiosyncratic information generated by analysts for firms which provide more information does not necessarily lead to greater consensus (Barron, Byard, Kim, 2002a), which may explain the apparent inconsistency in the results for Japanese compared with Australian companies.

Examining the components of governance, we see this result on *Disagreement* is driven by *Board Behavior* (Table 4, column 4). Apparently the incentive alignment process through compensation schemes and directors' ownership provides analysts with a more consistent view of the firm's future performance. From the control variables, we observe more disagreement for firms with more volatile share prices, where the prior year's forecast error was greater and the forecast horizon longer.

We report the 2SLS results for *Bias* and *Accuracy* in Table 4 for consistency, although models may be more appropriately estimated by OLS as the endogeneity tests indicate CG is not endogenous in these models. The OLS results are reported in Table 4. In the OLS model results, *CG Composite* is not significant (Table 4, Column 7). However in the component model, we find better *Board Organization* is associated with more optimistic *Bias* (Table 4, column 8), suggesting analysts perhaps overweight the importance of board structures in making their predictions. This contrasts with results from Beekes and Brown (2006), where *CG* is associated with pessimistic *Bias.* This difference in results may be due to the inability of analysts to correctly identify the influence of outside directors and new board structures on monitoring and the information credibility of Japanese firms. *Ownership* has a negative and

significant coefficient, suggesting outside ownership causes analysts to be less optimistic in their forecasts. The control variables show forecasts are more pessimistic for larger firms, but optimism increases with analyst following, perhaps because analysts 'talk themselves' up, but we have no other evidence to confirm or refute this possibility. There is also more optimistic *Bias* in the forecasts as the level of disagreement increases.

With regard to forecast accuracy, 2SLS reveals a positive association between *Accuracy* and *CG composite* (i.e. the error is smaller when CG score is higher; Table 4, column 9). For the components of governance, we find no significant relationship with forecast accuracy. Consistent with our expectations and the results of Beekes and Brown (2006), our OLS results (Table 4, column 11) show the quality of CG results in greater overall accuracy in forecasts. However, higher quality *Board Organization* results in less accurate forecasts (Table 4, column 12), but both the quality of *Board Behavior* and outside *Ownership* result in more accurate forecasts. Analysts are less accurate overall where there is greater disagreement and for firms with more volatile performance. Forecasts are more accurate for larger firms, perhaps because they disclose more often.[16]

4.4 Timeliness

Timeliness reflects how long it takes for the share price to converge to the end of year price, which incorporates news of the annual earnings performance. Smaller values of timeliness are associated with more timely price discovery. If monitoring of firms' activities by outside directors and institutional shareholders is effective and the market views disclosure as more credible for better-governed firms, we would typically expect prices to adjust more quickly to information, i.e. there would be a negative coefficient on CG. The 2SLS results from the timeliness models are reported in Table 3. The instruments are robust according to the Stock-Wright and Andersen-Rubin tests. Columns 3 and 4 (5 and 6) report results from the models using *Timeliness* (*Timeliness Deflated*) as the dependent variable. Contrary to our hypothesis, the results suggest firms with better CG have less timely price discovery (Table 3, column 3). We attribute this to the special governance arrangements in Japan and investigate further the possible existence of a main bank relationship (section 4.5).

Of the control variables, only volatility is statistically significant, suggesting increased volatility in performance is associated with less timely price discovery, as may be expected.

[16] We re-estimate our models for Accuracy and Disagreement by deleting observations which lie in the top and bottom 1 per cent of the distribution for the dependent variable. The results (not tabulated) are comparatively similar to those reported in the main analysis. In addition we include firms following the Committee System and re-estimate all of our Analyst models (N=15,901). Again, the results (not tabulated) do not change our conclusions from the earlier analysis.

When the individual elements of CG are examined, the timeliness effect is seen to be associated with *Board Behavior* as the other CG components are statistically insignificant. This is unexpected and suggests the introduction of outside directors and improved board structures has not led to more timely release of information.

To acknowledge that timeliness may be affected by stock return volatility, we deflate timeliness by one plus the absolute rate of return over the period which timeliness is calculated and re-estimate our models using this variable, '*Timeliness Deflated'*, as the dependent variable. Columns 5 and 6 of Table 3 report the results for the Timeliness Deflated models. Our conclusions for the variable of interest, CG, are unchanged from earlier estimations. However, it is of note that *Good News* is now negative and statistically significant, suggesting good news is reflected on a more timely basis by Japanese firms.[17]

4.5 Role of the Main Bank

As mentioned in section 2.2, the Main Bank plays a large role in many Japanese firms as it is a shareholder as well as providing on-going finance. To explore the role of the main bank in firm's ownership structures further, we obtain data for 2006 and 2007 for the level of main bank share ownership among sample companies (*Main Bank*).[18] This sub-index (Main Bank) reflects the percentage of ownership by and borrowing from a main bank, as well as the percentage of ownership by, and borrowing from the largest lending bank for the individual firm. Firms with greater main bank involvement are considered to have weaker CG so to be consistent with our other governance variables, *Main Bank* is coded such that higher levels of bank ownership and borrowing are coded 'low'. We re-estimate our models, including *Main Bank* as an additional variable and re-defining our CG composite to include *Main Bank* (*CG Composite II*). As in the previous analysis, we have separate datasets for the document count and timeliness models, and analyst models. In this section our focus is primarily on the Main Bank variable.

XX TABLE 5 XX

Table 5 Panel A shows the results from the document count models using 2SLS estimation methods for our sample of firms between 2006 and 2007 (N=2,724). *CG Composite II* is positive and significant (Table 5, column 1), consistent with prior results. In the model investigating the components of governance, *Main Bank* is not statistically significant (Table 5,

[17] Our results in this section are robust to outlier deletion (deletion of cases in the top and bottom 1% of values of the dependent variable) and to the deletion of volatility as an explanatory variable. We also repeat the entire analysis including firms following the Committee System. Our conclusions are unchanged.

[18] We do not have access to data for earlier years in our sample period.

column 2). Results for *Board Organization, Board Behavior* and *Ownership* are in line with results reported earlier in section 4.2.

Table 5, Panel B shows the 2SLS results for CG coefficients from all analyst models, plus OLS results from the *Bias* and *Accuracy* models as the endogeneity test results are insignificant in these models, suggesting OLS is preferred due to greater efficiency. The monthly analyst forecasts are for 2006 and 2007 (N=7,740). CG quality as a whole (*CG Composite II*) has a positive association with *Following* and is associated with less *Disagreement*. *Main Bank* is statistically significant in the disagreement model only. The positive coefficient on *Main Bank* (Table 5, Panel B, column 4) suggests greater connections with a main bank increases the degree of consensus in analysts' views on future EPS, contrary to our expectations.

In the timeliness models, *CG Composite II* is positive and significant (Table 5, Panel A, column 5) indicating lower bank influence is associated with less timely price discovery. Compared to the analysis in section 4.4, in the CG component model *Board Organization* and *Ownership* are positive and significant and *Board Behavior* is insignificant. *Main Bank* is also positive and significant. Therefore all CG variables, main bank included, suggest better CG is associated with less timely price discovery. We conclude the more traditional Japanese governance systems (existence of a main bank relationship, greater insider representation on the board and greater close ownership) results in greater timeliness of price discovery.[19]

5. Summary and Conclusions

We investigate the association of better CG with a number of measures for disclosure and the informativeness of disclosure, substantially extending the initial work of Beekes and Brown (2006). We adapt their models for a panel of data and incorporate 2SLS regression models to incorporate the possibility of endogeneity in CG. In addition, we examine an overall measure CG, as well as component parts of governance to provide additional insight. We choose to study Japanese companies as there has been a large focus on the importance of CG and transparency in Western countries, whereas Japan has not traditionally been associated with a high level of transparency. Our study period also spans a period where firms have begun to make changes to their CG structures in response to the changing ownership structures and increased prominence of shareholder rights in Japan. We anticipate CG would have a large influence on firm disclosures and transparency in Japanese firms.

[19] All conclusions reached in this section are unchanged if we include firms following the Committee System of governance and re-estimate the models (results not tabulated). Inclusion of these additional firms provides a sample of 2,799 observations for the document count and timeliness models and 8,142 observations for the analyst models.

Our results show firms with better overall CG are associated with more frequent disclosures to the Japanese share market, consistent with expectations. In addition, firms with better CG are associated with greater analyst following. Also analysts' are less divergent in their beliefs about future earnings performance, while forecasts are more pessimistic (or conservatively biased) and on the whole more accurate for better-governed firms in Japan. However we do not find firms with better CG are associated with faster price discovery. Indeed from our analysis we conclude that more traditional forms of CG in Japan (bank ownership, close shareholdings and insider membership of the board directors) are more effective at monitoring firms' transparency with regard to price informativeness, as they are associated with greater timeliness of price discovery. This may be attributed to greater information sharing within the group, resulting in less information asymmetry among group companies. It may also reflect a reduced need to consult with parties external to the corporate grouping, which can delay the release of information, and is consistent with prior research findings from Douthett and Jung (2001), and Douthett *et al.* (2004).

Our analysis drills down to underlying aspects of governance, focussing on the board of directors' size, composition and the committee structure s in place (*Board Organization*), the directors' ownership and the use of incentive schemes (*Board Behavior*) and ownership by different parties external to the firm (*Ownership*). Our results show firms rated 'high' on *Ownership*, i.e. foreign-owned firms and those with lower cross-shareholdings or dominant firm relationships, release less information to the stock market. Close monitoring within corporate groupings appears to be influential in ensuring disclosure of information in Japan, despite the decline in cross-shareholdings and corporate groupings in recent times. Ownership structures specific to Japanese firms improve corporate disclosure practices and appear to be an effective discipline on firm behavior. A possible reason for this result is that foreign ownership is still at comparatively low levels: a survey of companies listed on the TSE showed less than 10 per cent had more than 30 per cent ownership by foreign firms and over half had less than 10 per cent foreign ownership (TSE, 2007). Also, it could be argued that foreign investors and institutional investors such as CALPers are yet to make much impact on corporate behaviour in Japan (Jacoby, 2007).

Turning to analyst following, board structures and incentive schemes are strongly associated with analyst following; firms with better board structures and providing greater incentives to align managers' and owners' interests are considered attractive firms for analysts to follow. In addition, firms with better incentive alignment (*Board Behavior*) are associated with a greater level of consensus in analysts' forecasts, which are more accurate. Better board structures

(*Board* Organization) however tend to be associated with more optimistic forecasts, perhaps because analysts overweight information from boards where there is increased outside director involvement. There is some scepticism about the role of an outside director on Japanese boards given that some outside directors are affiliated with the company. Indeed our results suggest that insider-dominated boards are associated with greater earnings forecast accuracy. Price discovery is generally slower for firms with better CG, and in particular for firms with better *Board Behavior*. This is an interesting result and may suggest managers delay information for private benefit, although we have no information available to confirm or refute this possibility.

Our complementary analysis examining the main bank relationship indicates this relationship improves disclosure. We find firms with stronger ties to a main bank experience greater monitoring, resulting in more timely incorporation of information into share prices and less divergent views among financial analysts. The evidence presented here confirms that traditional Japanese structures are effective at monitoring firm's activities and a 'one size fits all' approach to governance may be inappropriate.

CG is an increasingly important issue for Japanese firms, given the globalisation of business and increased foreign investment in Japan. While there is change afoot in Japan with regard to board structures and the increasing influence of outside investors, Japan's well established governance structures have a dominant influence on corporate disclosure policies and the informativeness of the disclosures made.

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Table 1: Descriptive Statistics and Correlations for Document Count and Timeliness Models (N=5,011)

PANEL A: Descriptive Statistics[a]

Variable	Document count	Timeliness	Timeliness Deflated	CG Composite	Board Organization	Board Behavior	Ownership	Size	Good News	Volatility	Lead Industry
Mean	35.034	0.146	0.112	16.382	4.623	4.680	7.079	215,045	0.431	0.016	0.139
Std. Dev	15.469	0.104	0.072	5.576	3.027	2.855	2.608	740,949	0.495	0.007	0.346
Median	32	0.118	0.093	16	4	4	8	46,788	0	0.014	0
Minimum	7	0.017	0.014	3	1	1	1	1,278	0	0.004	0
Maximum	240	1.622	0.853	30	10	10	10	21,900,000	1	0.076	1

PANEL B: Pearson Variable Correlations[a]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Document count (1)	1.000										
Timeliness (2)	0.114	1.000									
Deflated Timeliness (3)	0.099	0.880	1.000								
CG Composite (4)	0.265	0.060	0.045	1.000							
Board Organization (5)	0.151	0.070	0.075	0.636	1.000						
Board Behavior (6)	0.174	0.020	0.013	0.694	0.113	1.000					
Ownership (7)	0.200	0.025	-0.005	0.640	0.075	0.256	1.000				
Size (8)	0.202	0.009	0.026	0.101	-0.024	0.032	0.208	1.000			
Good News (9)	0.061	-0.014	-0.183	0.016	-0.041	-0.004	0.086	0.033	1.000		
Volatility (10)	0.015	0.224	0.210	-0.010	0.115	-0.076	-0.072	-0.085	-0.112	1.000	
Lead Industry (11)	-0.036	0.007	0.019	0.067	0.030	0.007	0.102	0.105	-0.023	-0.007	1.000

[a]*Notes:* The sample (N = 5,011) comprises Japanese firms between 2004 – 2007 covered in the Nikkei Economic Electronic Databank System's Corporate Governance Evaluation System (CGES). All sample firms follow the Corporate Auditor System of governance. Where: *Document Count* is the number of documents filed with the TSE over the same period which timeliness is measured. *Timeliness* is the average daily absolute difference between the log of share price that day and the log of share price over the 365 calendar-day period ending 13 days after the release of the firm's annual earnings, *Timeliness Deflated* is Timeliness divided by one plus the absolute rate of return over the period over which timeliness is measured. *CG Composite*, *Board Organization, Board Behavior* and *Ownership* are measures of corporate governance (see section 3.1 for details), *Size* is the market value of equity (in ¥ millions) at the end of the prior fiscal year. *Good News* is a dummy variable equal to one if the market-adjusted return over the 365 calendar day period ending 13 days after the release of the annual earnings is greater than zero, and zero otherwise. *Volatility* is measured as the standard

deviation of daily log returns over a 90 day period immediately prior to the period over which timeliness is measured. *Lead Industry* is a dummy variable, equal to one for firms in the electronic and electronic equipment, and motor vehicles and auto parts industries, and zero otherwise.

Table 2: Descriptive Statistics and Correlations for Analyst Models (N=15,124)

PANEL A: Descriptive Statistics[b]

Variable	Mean	Std. Dev.	Median	Minimum	Maximum
Bias	0.003	0.045	-0.001	-0.201	0.962
Accuracy	0.016	0.042	0.006	0.000	0.962
Disagreement	0.007	0.020	0.004	0.000	1.401
Following	7.287	4.705	6	2	23
CG Composite	18.161	4.943	18	5	30
Board Organization	4.401	3.195	3	1	10
Board Behavior	5.055	2.647	5	1	10
Ownership	8.705	1.586	9	1	10
Size	451,586	1,120,223	167,294	5,693	21,900,000
Prev FE	0.007	0.065	-0.001	-0.632	2.965
Abs (Prev FE)	0.019	0.063	0.007	0.000	2.965
Volatility	0.016	0.006	0.015	0.004	0.052
Horizon	6.075	3.165	6	1	11
Lead Industry	0.211	0.408	0	0	1

PANEL B: Pearson Correlations[b]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Bias (1)	1.000													
Accuracy (2)	0.786	1.000												
Disagreement (3)	0.268	0.378	1.000											
Following (4)	-0.030	-0.053	-0.044	1.000										
CG Composite (5)	-0.017	-0.045	-0.047	0.173	1.000									
Board Organization (6)	0.062	0.051	0.003	0.065	0.773	1.000								
Board Behavior (7)	-0.048	-0.086	-0.073	0.007	0.687	0.191	1.000							
Ownership (8)	-0.099	-0.099	-0.033	0.396	0.415	0.074	0.086	1.000						
Size (9)	-0.040	-0.054	-0.030	0.474	0.064	-0.007	0.027	0.169	1.000					

Prev FE (10)	0.088	0.205	0.219	-0.033	-0.050	0.001	-0.063	-0.053	-0.044	1.000				
Abs (Prev FE) (11)	0.061	0.234	0.274	-0.053	-0.068	-0.005	-0.089	-0.054	-0.043	0.885	1.000			
Volatility (12)	0.082	0.175	0.147	-0.053	0.134	0.111	0.095	0.036	-0.122	0.133	0.177	1.000		
Horizon (13)	0.011	0.115	0.054	-0.020	-0.005	0.004	0.002	-0.027	-0.009	0.015	0.094	0.104	1.000	
Lead Industry (14)	0.043	0.067	0.048	0.136	0.052	0.048	0.035	0.010	0.107	0.063	0.078	0.069	-0.004	1.000

[b]*Notes:* The sample (N = 15,124) comprises Japanese firms between 2004 – 2007 covered in the Nikkei Economic Electronic Databank System's Corporate Governance Evaluation System (CGES) and monthly I/B/E/S analyst forecasts are for the annual Earnings Per Share (EPS) with a horizon of maximum 11 months. All sample firms follow the Corporate Auditor System of governance. Where: *Bias* is the Signed Forecast Error (FE). Forecast Error (FE) is defined as the mean forecast EPS less EPS as reported by I/B/E/S, deflated by the base share price (i.e. share price a year before the announcement month), *Accuracy* is the absolute value of the FE, deflated by the base price, *Disagreement* is the level of disagreement measured by the standard deviation across analysts' forecasts for that firm-month, deflated by the base price, *Following* is the number of analysts contributing to the consensus forecast, *CG Composite, Board Organization, Board Behavior* and *Ownership* are measures of corporate governance (see section 3.1 for details), *Size* is the firm's market value of equity a day before the I/B/E/S cut off date in ¥ millions, *PrevFE* is the last year's FE, deflated by previous year's base price, *Abs(PrevFE)* is the absolute value of PrevFe, deflated by previous year's base price, *Volatility* is calculated from daily return in the 90 trading days ended the day before the I/B/E/S forecast date, *Horizon* is the forecast horizon, measured by the number of months from the forecast date until the company makes its annual earnings announcement to the Tokyo Stock Exchange, *Lead industry* is a dummy variable, equal to for firms in the electronic and electronic equipment, and motor vehicles and auto parts industries, and zero otherwise.

Table 3: 2SLS Results from Document Count and Timeliness Regressions (N = 5,011)[c]

	Document Count Models		Timeliness Models			
Column No:	(1)	(2)	(3)	(4)	(5)	(6)
CG Composite	0.152***		0.015***		0.010***	
	[6.85]		[3.30]		[3.140]	
Board Organization		0.144***		-0.004		-0.008
		[3.06]		[-0.40]		[-1.11]
Board Behavior		0.125***		0.012**		0.011***
		[5.00]		[2.48]		[3.30]
Ownership		-0.201**		0.018		0.010
		[-2.27]		[0.86]		[0.80]
Size	0.078***	0.228***	-0.001	-0.007	0.002	-0.003
	[7.22]	[4.37]	[-0.25]	[-0.63]	[1.17]	[-0.40]
Volatility	0.040***	0.050***	0.022***	0.023***	0.013***	0.015***
	[5.24]	[4.83]	[11.91]	[10.89]	[10.07]	[9.71]
Good News	0.002	0.059**	0.005	0.002	-0.025***	-0.027***
	[0.15]	[2.47]	[1.60]	[0.40]	[-12.38]	[-7.90]
Lead Industry	-0.087***	-0.062**	-0.000	0.000	0.001	0.002
	[-4.08]	[-2.58]	[-0.04]	[0.00]	[0.34]	[0.58]
Intercept	3.478***	3.478***	0.146***	0.146***	0.112***	0.112***
	[454.15]	[399.97]	[92.90]	[89.75]	[107.91]	[100.48]
Adj. R^2	0.151	-0.054	0.062	0.038	0.077	0.028
F	102.10***	67.95***	51.35***	41.02***	52.56***	40.75***
Year controls	Included	Included	Included	Included	Included	Included
Test of Endogeneity	14.41***	26.81***	5.20**	7.44**	7.51***	15.09***
LM Test: Underidentification	191.64***	20.38***	191.64***	20.38***	191.64***	20.38***
F Test: Weak identification	269.13***	7.619	269.13***	7.62	269.13***	7.619
Stock and Wright test *(F)*	46.76***	61.61***	11.38***	11.75***	10.39***	14.58***
Anderson and Rubin test (χ^2)	49.53***	67.33***	11.32***	11.73***	10.35***	14.72***

*** significant at 1% level, ** significant at 5% level, * significant at 10% level. *t*-values are reported in parentheses.

[c]*Note*: The sample (N = 5,011) comprises Japanese firms between 2004 – 2007 covered in the Nikkei Economic Electronic Databank System's Corporate Governance Evaluation System (CGES). All sample firms follow the Corporate Auditor System of governance. For the Document count models, the dependent variable is the log of the number of documents in the Document Count models (columns 2 and 3). For the Timeliness models, in columns 5 and 6 (7 and 8), the dependent variable is Timeliness (Timeliness Deflated). All models are estimated with robust clustered standard errors using 2-Stage Least Squares regression methods, where CG is assumed endogenous and is instrumented using the average CG value for the industry of the firm. We do not report the results from the first stage estimations of our estimations, but these are available from the authors by request. All regressors are transformed to have mean zero and standard deviation one. See Table 1 for variable definitions.

Table 4: Results from Analyst Models (N = 15,124)[d]

Estimation Method	Following (2SLS)		Disagreement (2SLS)		Bias (2SLS)		Bias (OLS)		Accuracy (2SLS)		Accuracy (OLS)	
Column No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CG Composite	1.231***		-0.004***		-0.001		-0.007		-0.005*		-0.002**	
	[4.47]		[-3.45]		[-0.322]		[-0.80]		[-1.80]		[-2.14]	
Board Organization		0.671**		-0.001		-0.003		0.003**		-0.001		0.002**
		[2.17]		[-1.10]		[-1.16]		[2.57]		[-0.52]		[2.25]
Board Behavior		0.733**		-0.003***		0.002		-0.002		-0.004		-0.003***
		[2.48]		[-3.76]		[0.81]		[-1.65]		[-1.29]		[-2.96]
Ownership		0.535		-0.002		-0.002		-0.004***		-0.006		-0.003**
		[1.35]		[-1.57]		[-0.41]		[-2.74]		[-1.59]		[-2.44]
Following			0.001	0.001	0.003*	0.004*	0.003**	0.004**	0.003*	0.004*	0.002*	0.002
			[1.21]	[1.25]	[1.72]	[1.71]	[2.16]	[2.25]	[1.84]	[1.82]	[1.67]	[1.64]
Disagreement					0.011***	0.012***	0.011***	0.011***	0.013***	0.013***	0.014***	0.013***
					[4.97]	[4.90]	[4.85]	[4.80]	[4.21]	[4.10]	[4.13]	[4.07]
Volatility	0.242***	0.228**	0.002***	0.003***	0.001	0.001	0.001	0.001	0.004***	0.004***	0.003**	0.004***
	[2.79]	[2.41]	[4.28]	[4.05]	[0.68]	[0.68]	[0.73]	[0.95]	[2.59]	[2.61]	[2.55]	[2.70]
Size	3.737***	3.677***	-0.001	-0.000	-0.005***	-0.005***	-0.005***	-0.004**	-0.005***	-0.003**	-0.004***	-0.003**
	[30.21]	[17.77]	[-1.42]	[-0.52]	[-3.20]	[-2.62]	[-3.20]	[-2.29]	[-3.35]	[-2.33]	[-3.11]	[-2.45]
Prev FE					0.001	0.001	0.001	0.001				
					[0.25]	[0.28]	[0.25]	[0.21]				
Abs(Previous FE)	0.015	0.025	0.005***	0.005***					0.004*	0.004*	0.005*	0.004*
	[0.29]	[0.48]	[8.46]	[8.34]					[1.89]	[1.92]	[1.90]	[1.91]
Horizon	0.001	0.004	0.000**	0.000*	-0.000	-0.000	-0.000	-0.000	0.003***	0.003***	0.003***	0.003***
	[0.05]	[0.18]	[2.16]	[1.94]	[-0.76]	[-0.81]	[-0.76]	[-0.98]	[7.37]	[6.94]	[7.41]	[7.39]
Lead industry	1.16***	1.168***	0.001	0.001	0.002	0.002	0.002	0.002	0.004	0.003	0.004	0.003
	[3.38]	[3.37]	[1.02]	[1.02]	[0.73]	[0.69]	[0.73]	[0.65]	[1.34]	[1.27]	[1.31]	[1.29]
Intercept	7.29***	7.29***	0.007***	0.007***	0.003**	0.003**	0.003**	0.003**	0.016***	0.016***	0.016***	0.016***
	[57.07]	[56.97]	[18.01]	[17.82]	[2.14]	[2.28]	[2.31]	[2.34]	[17.70]	[17.78]	[17.86]	[18.03]

Year controls	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Adj. R^2	0.619	0.618	0.074	0.072	0.080	0.066	0.08	0.091	0.180	0.185	0.186	0.196
F	117.87***	95.95***	20.15***	18.52***	7.473***	6.00***	7.455***	8.054***	32.78***	28.38***	32.974***	27.664***
Test of Endogeneity	8.21***	9.86***	8.76***	12.81***	0.01	5.95			1.91	2.89		
LM Test: Underidentification	83.62***	36.10***	78.35***	36.10***	78.291***	36.11***			77.797***	35.96***		
F Test: Weak identification	177.71***	21.44***	157.78***	20.99***	157.95***	21.00***			156.90***	20.85***		
Stock and Wright test *(F)*	18.28***	18.38***	12.65***	23.37***	0.104	1.834			3.255*	3.296		
Anderson and Rubin test (χ^2)	21.43***	21.45***	13.14***	24.92***	0.104	1.818			3.295*	3.402		

*** significant at 1% level, ** significant at 5% level, * significant at 10% level. *t*-values are reported in parentheses.

[d]*Note*: The sample (N = 15,124) comprises Japanese firms between 2004 – 2007 covered in the Nikkei Economic Electronic Databank System's Corporate Governance Evaluation System (CGES) and monthly I/B/E/S analyst forecasts are for the annual Earnings Per Share (EPS) with a horizon of maximum 11 months. All sample firms follow the Corporate Auditor System of governance. Models are estimated with robust standard errors clustered by firm. The instrument used for CG in 2-Stage Least Squares estimations is the average CG value for the industry of the firm. We do not report the results from the first stage estimations of 2SLS estimations, but these are available from the authors by request. All regressors are transformed to have mean zero and standard deviation one. See Table 2 for variable definitions.

Table 5: CG Coefficient Results from Models controlling for the Main Bank Relationship[e]

PANEL A: Document Count and Timeliness Models (N=2,724)

Estimation Method	Document Count (2SLS)		Timeliness (2SLS)		Timeliness (OLS)	
Column No	(1)	(2)	(3)	(4)	(5)	(6)
CG Composite II	0.172***		0.002		0.010***	
	[6.17]		[0.31]		[5.156]	
Main Bank		-0.039		0.015		0.005**
		[-0.86]		[1.29]		[2.44]
Board Organization		0.167***		0.013		0.005**
		[3.45]		[1.21]		[2.15]
Board Behavior		0.112***		-0.002		-0.001
		[3.87]		[-0.28]		[-0.58]
Ownership		-0.157*		-0.017		0.012***
		[-1.67]		[-0.58]		[4.27]
Intercept	3.55***	3.55***	0.14***	0.14***	0.14***	0.14***
	[425.00]	[379.21]	[66.67]	[64.03]	[66.75]	[66.98]
Adj. R^2	0.104	-0.09	0.065	0.016	0.07	0.07
F	52.87***	31.72***	30.61***	20.48***	37.18***	26.87***
Test of Endogeneity	11.61***	40.50***	1.45	1.27		
LM Test: Underidentification	125.22***	19.54***	125.22***	19.54***		
F Test: Weak identification	173.09***	5.18	173.09***	5.18**		
Stock and Wright test *(F)*	37.63***	72.49***	0.098	2.84		
Anderson and Rubin test (χ^2)	37.77***	79.56***	0.098	2.84		

Panel B: Analyst Models controlling for the Main Bank Relationship (N=7,740)

Estimation Method	Following (2SLS)		Disagreement (2SLS)		Bias (2SLS)		Bias (OLS)		Accuracy (2SLS)		Accuracy (OLS)	
Column No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CG Composite II	1.524***		-0.001**		0.000		-0.001		0.001		-0.000	
	[4.04]		[-2.04]		[0.11]		[-0.72]		[0.65]		[-0.22]	
Main Bank		0.429		0.001*		-0.003		0.000		-0.000		0.001
		[0.89]		[1.83]		[-1.30]		[0.35]		[-0.24]		[1.07]
Board Organization		1.113***		-0.000		-0.002		0.001		0.001		0.001*
		[2.99]		[-0.13]		[-0.71]		[1.33]		[0.72]		[1.81]
Board Behavior		0.835*		-0.001**		0.001		-0.001		-0.001		-0.002*
		[1.86]		[-2.02]		[0.40]		[-1.10]		[-0.55]		[-1.96]
Ownership		0.247		-0.001		0.003		-0.003**		0.002		-0.002
		[0.50]		[-1.47]		[1.10]		[-2.17]		[0.77]		[-1.34]
Intercept	7.26***	7.26***	0.005***	0.005***	0.001	0.001	0.001	0.001	0.012***	0.012***	0.012***	0.012***
	[51.11]	[51.33]	[22.84]	[21.82]	[1.38]	[1.32]	[1.37]	[1.38]	[14.40]	[14.34]	[14.41]	[14.58]
Adj. R^2	0.582	0.585	0.194	0.156	0.027	-0.013	0.028	0.036	0.094	0.091	0.098	0.107
F	115.15***	83.37***	17.46***	14.34***	5.10***	3.52***	5.06***	3.94***	20.97***	17.79***	19.71***	16.81***
Test of Endogeneity	9.20***	12.00***	5.74***	15.11***	0.14	6.04			0.40	2.23		
LM Test: Underidentification	49.92***	25.27***	43.31***	24.99***	43.42***	25.04***			43.46***	25.04***		
F Test: Weak identification	92.95***	14.55***	75.96***	15.02***	76.73***	15.04***			76.78***	15.20***		
Stock and Wright test *(F)*	16.78***	21.28***	4.51**	24.77***	0.01	3.07			0.42	1.10		
Anderson and Rubin test (χ^2)	18.71***	25.36***	4.68**	28.62***	0.01	3.23			0.42	1.10		

*** significant at 1% level, ** significant at 5% level, * significant at 10% level. *t*-values are reported in parentheses.

[e]*Notes*: The sample for Panel A Document Count and Timeliness models (N = 2,724) comprises Japanese firms between 2006 – 2007 covered in the Nikkei Economic Electronic Databank System's Corporate Governance Evaluation System (CGES) which also have available data on Main Bank relationships. The sample for Panel B analyst models (N = 7,740) comprises Japanese firms between 2006 – 2007 covered in the Nikkei Economic Electronic Databank System's Corporate Governance Evaluation System (CGES) which also have available data on Main Bank relationships, and monthly I/B/E/S analyst forecasts are for the annual Earnings Per Share (EPS) with a horizon of maximum 11 months. Models are estimated with robust standard errors clustered by firm. The instrument used for CG in 2-Stage Least Squares estimations is the average

CG value for the industry of the firm. Results from the first stage estimations are available from the authors by request. All regressors are transformed to have mean zero and standard deviation one. Main Bank is defined as the ratio of ownership by a main bank, and the ratio of borrowing from a main bank from the top ranked bank and the largest lending bank for the individual firm.CG Composite II is an aggregate variable which is the sum of Main Bank, Board Organization, Board Behavior and Ownership. See Table 1 (Table 2) for other variable definitions for the document and timeliness (analyst) models. Other controls included but not reported for brevity.