The relationship between disclosure, information timeliness and corporate governance:

A cross country study

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Abstract

We examine the link between corporate governance, and the level of firms' disclosures and timeliness of price discovery in a cross-country study of the period 2003 to 2008. Our results confirm better-governed firms make more announcements to the market. We also find different levels of disclosure between common and civil law countries, with firms with better governance in common law countries being associated with greater disclosure. Our timeliness of prices results suggest better governance is associated with less timely reflection of a firm's performance information in share prices. This would suggest corporate governance is a substitute rather than a complement with respect to corporate transparency. These results lead us to the conclusion that even if more information is disclosed by better-governed firms, it is not necessarily the case that it will be reflected in share prices in a more timely fashion.

1. Introduction

There has been an increased emphasis on firm's Corporate Governance (CG) and firm disclosure post the corporate scandals of Enron and WorldCom. Corporate transparency has an important role to play in overcoming agency problems and information asymmetries between owners and managers (Jensen and Meckling, 1976). CG has an important influence on managers' decision making processes and can help align managers' objectives and actions with shareholders' best interests through increased monitoring of managers' actions. For example, prior research has shown CG can reduce the propensity for earnings management in a firm (Beasley, 1996), and increase the frequency of disclosures frequency and the speed of price discovery (Beekes and Brown, 2006).

This study specifically focuses on the information flows from the firm to market participants by examining the release of information via company announcements to the stock market, with the expectation that CG positively influences the level and informativeness of disclosure. In addition, since the information from firms with 'better' CG is potentially more credible, we expect it to be traded upon quickly and reflected in share prices on a more timely basis relative to other firms.[2] To investigate this we use a measure of the timeliness of price discovery which examines how quickly performance information relating to the annual earnings announcement is incorporated into share prices throughout the year. In addition to examining the role of CG structures internal to the organisation (such as board independence and audit quality), we also investigate the impact of two external measures, namely family ownership and block holdings by institutional investors on firm level disclosure and timeliness.

Our study uses the Institutional Shareholder Services (ISS) dataset to measure CG in developed countries. This dataset encompasses a variety of measures for CG that are important for effective CG according to prior research or are incorporated into governance guidance, such as the size and composition of the board of directors and its committees, the external auditor and the balance between audit and non-audit fees paid to the auditor. We use the ISS data in a comparable manner to prior studies (e.g. Aggarwal, Erel, Stulz and Williamson 2010; Aggarwal, Erel, Ferreira and Matos, 2011), making a summative composite index of seven governance aspects captured by the dataset. We also examine two

[2] By 'better' CG we are referring to the firm achieving a higher rating according to our measure of CG.

sub-indices focused on the audit quality of the firm and the quality of its board (as in Yu, 2011), which are expected to enhance disclosure and timeliness of information discovery in prices.

Using estimation methods which control for potential endogeneity in CG and ownership, we find that better-governed firms release more information to the market, as proxied by the number of announcements made to the stock exchange over the financial year. We find no statistically reliable effect for the level of family ownership or block-holding by institutional investors. Although better CG results in greater disclosure for firms in all countries included in our sample, our results by legal origin suggest individual firm-level CG has a greater influence on disclosures in common law countries. The results for timeliness of price discovery suggest there is a substitution relationship between CG and timeliness, i.e. firms with better CG are associated with less timely price discovery. Our results are robust to a number of alternative specifications.

We contribute to a growing literature on CG and disclosure, by providing firm-level and county-level evidence on the frequency and timeliness of disclosure. Our paper is related to the cross-country study completed by Yu (2011), who investigates stock price informativeness by evaluating stock return variation and earnings response coefficients. We specifically examine the level of disclosure as proxied by the number of announcements made to the stock exchange and the timeliness of information discovery in prices. Our results suggest greater overall disclosure levels are not matched by timeliness in better-governed firms, which is contrary to Yu's finding which suggests there is greater informativeness for better-governed firms. In addition to evaluating our results at the individual firm level, we specifically relate our results to a country's legal origin, thereby contributing to the debate regarding the relevance of CG at the country level and the role of investor protection. Second, we specifically control for endogeneity in our approach as disclosure and CG, and timeliness and CG, may be jointly determined. Our results suggest that for many models, endogeneity is not a significant concern.

The next section discusses the motivation and hypotheses to be tested in our study. Section 3 examines the data, and the research method used in this study. Section 4 discusses the results from the document count models and section 5 discusses the results from the timeliness of price discovery models. Section 6 concludes the paper.

2. Motivation and Hypothesis

2.1 Corporate Governance, Ownership and Disclosure Frequency

We examine two major research questions. First, what is the benefit of CG to investors in terms of information transparency and disclosure? Do better-governed firms release more information and is this information incorporated into prices on a timelier basis. Second, how does this CG effect differ by country? We examine these questions on a cross-country basis using the ISS dataset to measure CG in developed countries. Following Aggarwal *et al.* (2011), we use an aggregate measure of CG which takes seven aspects of CG into account, focussing on the structure of the board and the audit quality, as well as the capital structure of the firm. In addition, in sensitivity analysis, following Yu (2011) we also use two sub-indices, *Audit* and *Board* which evaluate the board and audit quality separately. We believe both of these aspects should affect the level and timeliness of firm disclosures to the market.

The need for firm disclosure arises from a fundamental agency problem (Jensen and Meckling, 1976) and firms' desire to signal their quality to current and potential investors (Akerlof, 1970). Firm disclosures are a crucial feature of an efficient capital market and they occur even in the absence of stock market legislation that encourages continuous disclosure of price relevant information to keep the market informed. Disclosures to the market are important and enable investors and creditors to obtain a better understanding of the firm's activities thereby reducing agency costs. Firms' incentives to volunteer information are well researched. For example, prior research has found larger firms disclose more information (Lang and Lundholm, 1993), as do firms with superior performance (Lev and Penman, 1990). In addition, there could be incentives to disclose information to reduce the cost of equity capital (Botosan, 1997) or alternatively to reduce the cost of debt (Sengupta, 1998). Managers may also have opportunistic incentives to disclose information to enhance the value of their shares or option awards (Aboody and Kasznik, 2000) or protect themselves against potential litigation when they become aware of bad news (Skinner, 1994). Disclosure may also be a function of the growth opportunities of the firm as firms engaging in more research and development may be less keen to disclose information about product developments for proprietary cost reasons (Core, 2001; Verrecchia, 1983). Disclosure of course is not costless; it can have major cost implications for the firm, although as alluded to earlier there may be benefits that more than offset the costs.

Prior evidence has shown the importance of CG for managers' decision making. Fama (1980) indicates that the board of directors has a vital role to play in monitoring managers' actions and the outcomes. Outside directors are associated with better earnings quality and lower amounts of financial fraud (Dechow, Sloan and Sweeney, 1996 and Beasley, 1996). In addition to monitoring the quality of reported earnings, outside directors may be able to positively influence firm disclosure levels, e.g. via the issuance of management earnings forecasts (Ajinkya, Bhoraj and Sengupta, 2005; Karamanou and Vafeas, 2005), and encourage more timely release of information (Sengupta, 2004). Beekes and Brown (2006) find better-governed Australian firms make more disclosures to the market and their earnings performance is reflected in stock prices on a more timely basis compared with other firms. Also the presence of external block holdings by institutional investors may create additional incentives for disclosure (Healy, Hutton and Palepu, 1999). For these reasons CG may positively influence disclosure.

However CG comprises a number of difference elements and there may be a substitution relationship between the various aspects of CG and disclosure. For example, Leung and Horwitz (2004) find outside directors are effective at increasing firm disclosure, but only in instances when managerial ownership was also at low levels. Also, firms with better CG may feel a lesser need to disclose information to the market due to the greater monitoring of management in place (Eng and Mak, 2003). Although outside directors may be perceived to be helping to monitor managers and to promote greater disclosure, in some instances they may be ineffective in their role due to allegiance to management, a lack of experience or because board dynamics may prevent them from performing their duties effectively. Therefore the presence of outside directors on the board of directors in itself does not guarantee that disclosure is any greater, especially if there are other dominant parties on the board of directors, such as representation from group companies or main bank representatives as in Japan (Douthett and Jung, 2001).

In addition to examining the structures of CG, our study also incorporates the firm's ownership structure; specifically the level of family and institutional ownership. Individual countries have very different ownership structures. La Porta *et al*. (1998) for example report many countries have concentrated ownership and this may be through other firms or family share holdings. Some countries in our sample (for example, Japan and Canada) have firms

with a large proportion of closely held shares. In Japan this is likely due to the influence of main banks and corporate groupings through keiretsu (Kang and Shivdasani, 1999) and in Canada through family connections (Ben-Amar and André, 2006). Such firms are considered to be controlled by insiders and may prefer to retain information within the organisation, rather than encouraging the dissemination of information to external parties. This secretive approach could enable the dominant shareholders to expropriate wealth from the minority shareholders in the firm. However, prior evidence suggests although family dominated firms provide fewer disclosures in terms of conference calls and earnings forecasts, they do provide more earnings warnings for fear of litigation from other shareholders when there is 'bad' news (Chen, Chen, Cheng, 2008). Therefore the undiversified nature of the shareholdings of family firms may result in greater disclosure and may even be beneficial as it may enable them to have a lower cost of capital (Botosan, 1997). The influence of family ownership on disclosure is therefore by no means clear from prior empirical work and we leave it as an open question in our study.

In addition to family ownership, external ownership and monitoring provided by institutional investors can influence firm disclosure. Healy, Hutton and Palepu (1999) find firms that increase their disclosure are associated with greater institutional ownership. Ajinkya, Bhoraj and Sengupta (2005) find firms with greater institutional ownership are more likely to issue management forecasts and managers are much more conservative (i.e. less optimistic) in their earnings forecasts where there is higher institutional ownership. However, the impact of institutional ownership will depend upon the level of ownership concentration of institutional ownership as this will inevitably influence the desirability for firms to disclose information to other parties. Consistent with this argument, Ajinkya, Bhoraj and Sengupta (2005) find concentrated block ownership is negatively associated with disclosure. Therefore it is unclear whether institutional ownership will have a complementary or substitution role in firms' disclosure practices.

Our basic prediction is monitoring provided by CG will result in greater firm disclosure:

H_{1A}: There is a positive association between CG quality and disclosure frequency.

However the evidence for the influence of family ownership on disclosure, and the presence of institutional ownership, is mixed. For this reason we make no prediction for the directional impact of ownership on disclosure and leave it as an open question.

In addition to examining evidence at the individual firm level, we are also interested in cross-country differences and in particular differences by legal origin of the countries included in our sample. Shareholders are an important source of finance but investors demand protection of their investment and stewardship of the resources in the company in which they have invested. Prior evidence shows investor protection varies across countries (La Porta *et al.,* 1998). As investor rights increase, it is likely that shareholders will demand additional information from companies in which they have invested. It is also more likely that any mandatory requirements for disclosure will be enforced in countries where investor rights are higher. Based on prior evidence (e.g. La Porta *et al.,* 1998; Ball, Kothari and Robin, 2000) we expect that disclosure and firm transparency will be greater in common law countries because of their stronger protection of investor rights. This leads to our second hypothesis:

> *H_{1B}: There is a positive association between disclosure frequency in common law countries.*

However we expect that better CG will provide incentives for greater disclosure in both civil and common law countries, although the magnitude of disclosure is likely to be greater in common law countries due to their greater investor protection, which leads to our third hypothesis:

> *H_{1C}: The positive association between CG and disclosure is greater in common law than civil law countries.*

2.2 Corporate Governance, Ownership and the Timeliness of Price Discovery

The timeliness of information is important to ensure current and potential investors are kept informed of current views (and changes to prior views made public) on future performance. What matters to decision makers is not only the quantum of credible information that is disclosed, but also the timeliness and relevance of the disclosures. We would predict, as regulators have opined in Australia and Canada for example, that better-governed firms release information on a more timely basis and the information they release is "balanced", i.e. good and bad news are disclosed on the same basis (Australian Stock Exchange Corporate Governance Council, 2003; Toronto Stock Exchange, 2004). Obviously managers may have incentives to opportunistically time the release of favourable information, such as when they can control the flow of information to enhance their wealth through grants of stock options. However, there could also be incentives to accelerate the timeliness of bad news: Skinner (1994) suggests managers may release more bad news to limit the risk of costly shareholder litigation.

In this study we focus on the flow of information to the market up to the time of the company's annual earnings release; and we assess the speed with which that information is integrated into share prices. The genesis of our approach is found in Ball and Brown (1968), who acknowledge that most of the information relating to the annual earnings announcement is incorporated into the share price well in advance of the annual earnings release date.[3] Beekes and Brown (2006) find firms with better CG in Australia have more timely price discovery (i.e. their share prices reflect the information relating to annual performance more quickly than other firms). Based upon this evidence, we expect that firms with better CG will be associated with more timely price discovery. We predict the following:

H_{2A}: Price discovery is faster (more timely) for firms with better CG.

Firms with more insider involvement, such as family controlled companies may prefer to keep the information within the organisation. Also family ownership may result in firms not wishing to disclose information to minority shareholders on a timely basis as the investment horizons of family shareholders tend to be longer than other investors (Anderson and Reeb, 2003). Therefore firms with greater family ownership may be associated with less timely price discovery, especially as family owners are likely to be more integrally involved in the business, resulting in lower information asymmetry between the family and managers. Therefore the monitoring which would arise from this close relationship may reduce the necessity for timely disclosure, implying family ownership would be associated with lower disclosure timeliness. On the other hand, family controlled companies may wish to be perceived as being transparent in an effort to ensure continuity of the firm, as they have much to lose if the firm fails, given their investments of human capital and other wealth in the business. Prior evidence has shown that disclosure on a timely basis may pre-empt litigation (Skinner, 1994). Given the non-diversified nature of the family share holding, we may expect firms to take a more conservative view and release information on a timely basis. Therefore timeliness may not be detrimentally affected by the presence of family ownership. We leave this as another open question in our study.

We also investigate the relationship between institutional ownership and the timeliness of price discovery. Institutional investors are considered effective monitors of firm behaviour and are associated with greater disclosure (Bushee and Noe, 2000). However, in some

[3] Ball and Brown (1968) differentiate between "Total Information", "Net Information" and "Accounting Information". Our focus is on what they define as Net Information.

countries (e.g. Japan) institutional ownership is just beginning to be a significant part of firms' ownership structures; and, arguably, institutions have not yet been as effective in Japan as in other countries when it comes to their ability to monitor managers effectively and to encourage greater transparency (Jacoby, 2007). On the other hand, rather than increasing disclosure timeliness, institutional block holdings may be associated with a desire to keep information within the organisation so that if information is released, it may be less timely. Therefore we also leave how institutional ownership affects the timeliness of price discovery as an open question.

For firms in common law countries we would expect greater disclosure and transparency, as discussed earlier. Therefore we would expect this to flow through to the timeliness of price discovery, so overall timeliness is greater in common law countries. We still anticipate CG will have an impact on the timeliness of prices in civil law countries, but we anticipate the magnitude of the effect will be higher in common law countries as firms with better CG try to differentiate themselves from other firms.

H_{2B}: There is greater timeliness of price discovery in common law countries than civil law countries.

H_{2C}: The incremental effect of CG on timeliness is greater (i.e. better-governed firms are more timely) in common law countries relative to civil law countries.

3. Data and Method

3.1 Sample selection and description

Our study uses two distinct datasets in the analysis of the link between CG and disclosure frequency, and timeliness: (i) document counts, and (ii) the timeliness of price discovery. Both datasets use annual firm-level data, but the country coverage differs between the two samples due to data availability. The document count dataset contains data from nineteen countries as we were unable to source reliable company announcement (document) data for Austria, Germany, New Zealand, Switzerland and USA and so these countries are excluded from the final document count dataset. The timeliness dataset contains data for all twenty-four countries covered by our CG dataset (outlined below). Our sample time period is 1 January 2003 to 31 December 2008, although for some countries we do not have complete data for the full time period available to us. Panel A of Tables 1 and 5 show the country-year coverage for the document count and timeliness of prices datasets, respectively.

Our primary sample consists of the firms covered by the ISS database which is used for our measure of CG. This dataset has two distinct advantages over other CG datasets. First, it covers data in a variety of developed countries thereby enabling us to examine the relation between country characteristics and CG.[4] Second, firms covered in the dataset are generally larger firms which are likely to be more important in their respective countries and to attract more interest from institutional investors and analysts. Rather than using the metric calculated by ISS, the usefulness of which has been questioned in the literature (Daines, Gow and Larcker, 2010), we use the underlying CG data to generate an index of CG, as explained below.

3.1.1 Firm Level Corporate Governance and Ownership

Following prior research (Aggarwal *et al.* 2011) we use a parsimonious individual firm measure of CG which takes seven unique governance characteristics that are common to the ISS USA and Global (non-USA) datasets. Although ISS has daily files for CG data, our initial analysis shows many items remain unchanged throughout the year. For this reason, we measure CG as at 31 December each year for every firm in our sample and this data is matched to the firm's financial data drawn from the firm's financial statements of the same year. To determine a firm's CG rating, ISS collects CG data from publicly available company disclosure documents such as the annual report and regulatory filings, and the company CG profile is updated each time shareholders meet (ISS, 2003). The sample coverage differs significantly between the USA and Global datasets: the USA dataset covers a much larger sample of firms compared with the Global dataset. USA firms are covered by ISS if they appear in any of the following indices: Standard and Poors (S&P) 500, S&P Mid-Cap 400, S&P Small-Cap 600, Russell 3000 (ISS, 2005). This criterion results in more firms being covered and a greater diversity in terms of firm size for the USA sample. Only larger firms are included in the Global dataset (i.e. non-USA countries); specifically firms listed on the Morgan Stanley Capital International Europe, Australasia, and Far East (MSCI EAFE) index and for Canada, firms listed on S&P's Composite index of the Toronto Stock Exchange (ISS, 2003).[5]

[4] Country coverage of the ISS datasets is as follows: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, UK and USA. Although more countries are covered by the database over time, the relatively small number of observations per annum for some countries results in them being excluded from our study.

[5] We address this in our results estimation by excluding the countries for which there is a greater proportion of observations and re-estimating our results.

ISS CG data are recorded in such a way that firms meeting 'minimum standards' of governance (as specified by ISS) are identified and this is done on a comparative basis across all countries covered by the dataset. We adopt a simple additive rule to construct a governance index from these items (as in Gompers *et al*., 2003; Aggarwal *et al.*, 2011). The firm scores one point for each characteristic successfully met and zero otherwise. The sum of the scores is simply divided by seven and recorded in the form of a percentage score.[6] We acknowledge that such a straight-forward approach has been criticised in the literature and, in response, several studies have sought to identify the key aspects of CG (e.g. Bebchuk, Cohen and Ferrell, 2009; Daines Gow and Larcker, 2010; Larcker, Richardson and Tuna, 2007). The seven CG characteristics included in our index are shown in Appendix A.[7] This measure of CG includes the assessment of the independence and size of the board of directors, the separation of the roles of CEO and Chairman, composition of the audit committee membership, and the presence of more than one class of share capital.

The ISS dataset focuses on the internal structures of governance of firms (e.g. board and board committees) and does not specifically examine ownership structures. To enable ownership structure to be included in our study, we use data on the percentage of family ownership and the percentage of institutional block holdings (we aggregate holdings of at least five per cent), sourced from OSIRIS.[8]

3.1.2 Other data sources

Variable definitions and sources of data are included in the Appendix. Data for company announcements (document counts) are sourced directly from stock exchanges wherever possible (e.g. the Australian Securities Exchange, Hong Kong Exchange, Irish Stock Exchange), but for some countries alternative sources were used as the data were unavailable from the stock exchange directly, such as Perfect Information for the UK. We obtain all share-related data (share price, returns, number of shares outstanding, market index returns) from Datastream for Global companies and the Center for Research in Security Prices

[6] In sensitivity analysis, we test the robustness of our results to other measures of aggregate CG used in the literature.

[7] In constructing the variables, if the item is missing in the current year, we forward fill it with the previous year's value to maximise the potential number of observations in our sample, as in Aggarwal *et al.* (2011).

[8] In sensitivity analysis we also use a measure of close ownership from Worldscope that includes ownership by family, directors and individuals holding more than 5% of issued share capital.

(CRSP) for USA companies. The date of the annual earnings release which is used in both our datasets is taken from a variety of sources to maximise the sample coverage. We obtain announcement dates from Bloomberg, Reuters, Compustat, Compustat Global, Institutional Brokers' Estimate System (I/B/E/S) and Worldscope. Where we have more than one source of data for the annual earnings release date for a particular firm year, we take the earliest plausible date which we deem to be at least two weeks but not more than six months after the financial year end to reduce the number of potentially erroneous dates. Firm-level accounting data are taken from Worldscope for Global companies and Compustat for USA companies. Data for cross-listing on a USA stock exchange are identified from the Bank of New York, US Stock exchanges and the Securities and Exchange Commission. Industry is defined by the 10 Standard & Poors Global Sector Classification (GIC) groups. We use La Porta *et al.* (1998) to determine whether a particular country has a common or civil law origin. To reduce the influence of outliers, we winzorise continuous firm-level variables at the 1% and 99% levels.

3.2 Measuring disclosure and information transparency

We examine two particular aspects relating to disclosure and transparency. First, we examine the level of disclosure frequency as proxied by the individual firm announcements made to the stock exchange over the year (hereafter termed 'documents'). Second, we examine the timeliness of price discovery, using a measure that summarises how quickly value relevant information became known to the market and was reflected in share prices over the 365 days ending 14 days after the firm announced its results for the year. Both aspects are explained in more detail in following sections.

3.2.1 Frequency of Disclosure

To measure the association of CG and disclosure frequency, we focus on the number of documents the firm releases to the stock market over the year. We also impose the criteria that firms must make at least five announcements during the year to be included in the sample. Our dependent variable is the log of the number of the documents released over a 365 day period ending two weeks after the firm's annual earnings release date. This period will enable us to capture all documents released throughout the year and the documents relating to the annual earnings performance which, since Ball and Brown (1968) has been recognised as a potentially important value relevant event for the firm. We test the impact of CG on the level of voluntary disclosure in the following equation:

$$Log\ Doc\ Count_{it} = \beta_0 + \beta_1 Gov7_{it} + \beta_2 Family_{it} + \beta_3 Instown_{it} + \beta_4 Size_{it}$$
$$+\beta_5 Leverage_{it} + \beta_6 Volatility_{it} + \beta_7 Goodnews_{it} + \beta_8 Crosslist_{it}$$
$$+ \beta_9 Common_{it} + \beta_{10} Common \cdot Gov7_{it} + \beta_{11} Common \cdot Family_{it}$$
$$+ \beta_{12} Common \cdot Instown_{it} + \gamma_j + \delta_k + \lambda_t + \theta_{jt} + \mu_{kt} + \varepsilon_{it} \quad (1)$$

Where: *Gov7* is a measure of corporate governance which ranges between 0 and 1 and is increasing in governance quality (see Appendix A for further details), *Family* is the percentage of shares held in the firm by family members, *Instown* is the percentage of block institutional block ownership in the firm, *Size* is firm size proxied by the log of market capitalisation, *Leverage* is measured as total debt divided by total assets, *Volatility* is calculated from daily log returns in the 90 days prior to the first day of the measurement period for the document count, *Good news* is a dummy variable equal to one if share performance is above the market over the year, and zero otherwise, *Crosslist* is a dummy variable equal to one if the firm is cross listed on a US exchange and zero otherwise, *Common* is a dummy variable equal to one if the firm is domiciled in a country of common law origin and zero otherwise, and *Common·Gov7*, *Common·Family* and *Common·Instown* are interaction terms. *i* indexes the firm, *t* indexes the year, *j* indexes the country, and *k* indexes the industry sector. γ_j is a vector of country indicators, δ_k is a vector of sector indicators, λ_t is a vector of year indicators, θ_{jt} is a vector of country-year indicators and μ_{kt} is a vector of sector-year indicators.

The four models estimated in this paper for the document counts are nested in Eq. (1) above. The primary focus of Eq. (1) is the voluntary level of disclosure for better-governed firms, since mandatory disclosure levels are captured by the intercept. We predict better-governed firms release more information relative to other firms; i.e. β_1 is positive (H_{1A}), although we have no clear prediction for the impact of family or institutional ownership. Given better investor protection in common law countries, we would expect common law countries to be associated with greater overall disclosure, which would be reflected in a positive coefficient on β_9. While we expect CG will impact on disclosure in all countries irrespective of their legal origin, we expect there is incrementally greater disclosure by better-governed firms in common law countries, which would be reflected in a positive coefficient on β_{10}. In our first model estimation, we focus on CG measured by *Gov7* and omit variables designed to capture the effects of different ownership structures (*Family* and *Instown*) and legal origin. The two ownership variables are then included in the next specification as in Eq. (1). In the third and

fourth models we include variables for legal origin and interactions with governance (model 3) and ownership (model 4).

The model uses several additional independent variables identified from prior research to control for other possible determinants of document disclosures. First, we include firm size to control for the positive association observed between disclosure and size (Lang and Lundholm, 1993). *Leverage* is included as more highly levered firms are more risky and therefore may be under greater scrutiny, and may be prompted to release more information to the market as a consequence. Stock return *Volatility* is included to proxy for the notion that greater volatility in performance could result in additional disclosures due to investors' greater demand for information. In addition, *Goodnews* is included to control for the positive association observed between disclosure and firm performance (Lang and Lundholm, 1993; Lev and Penman, 1990). We control for a firm's cross listing (*Crosslist*) on a US exchange via level II or level III American Depository Receipts (ADRs), which require the firm to file a Form 20-F with the US S.E.C. (Durand and Tarca, 2005), to meet the greater reporting requirements of US exchanges, and to satisfy the greater protection requirements for minority investors in the US (Coffee, 2002; Doidge, 2004). We control for industry using the 10 S&P Global Industry Classification Standard (GICS) sectors as we anticipate some firms may have lower incentives for disclosure due to their greater proprietary costs (Verrecchia, 1983), especially in sectors with large research and development expenditures, such as health care or information technology. Our models also control for year, country, country-year and sector-year effects.

We include country-year effects to control for the variation in year for that particular country rather than including a set of country level variables in our model. Similarly we include controls for sector-year, as there will inevitably be some developments which affect the sector as a whole. This would appear to be a more efficient method of capturing variation because many data items for country-level effects do not vary significantly over time, and it is also problematic to determine exactly which variables should or should not be included given the variation in our sample.

3.2.2 Timeliness of Price Discovery

To examine the timeliness of information discovery about a firm's performance, we use the metric developed in Beekes and Brown (2006). This metric examines 'timeliness' at the

individual firm level and is based upon the concept introduced by Ball and Brown (1968). The measure focuses upon the annual earnings release for the firm as this is an important, regular event for all firms and is expected to be price relevant. We know from prior research that much of the information included in the firm's annual earnings announcement is anticipated by the market well in advance of the annual earnings announcement after the firm's financial year end. The timeliness of price discovery measure examines the impact of all value relevant information on the individual firm's share price during the year ending 14 days after the announcement of the firm's earnings for the year, which allows the price to settle following the annual earnings announcement. Specifically, Timeliness, is defined as:

$$Timeliness = \frac{\sum_{t=-365}^{t=-1} |\ln(P_0) - \ln(P_t)|}{365} \quad (2)$$

where: P_t is the daily market-adjusted share price; and day 0 is 14 days after the announcement date.

We compare 'timeliness' across firms; i.e. how quickly the firm reaches the terminal price on day 0. The intuition behind this model is as follows. If a firm releases all value relevant information on day t = -365, the share price moves to P_0. And if for the remaining 364 days no further price relevant information is released and the share price tracks the market index until day t = 0, then beyond that included on the first day, there was no further value relevant information incorporated into prices. This example describes a firm releasing value relevant information on an extremely timely basis, i.e. all on day one. In this instance, the speed of adjustment is at the maximum level possible and the timeliness metric is near zero. At the other extreme, a firm may have a share price which tracks the market index until the last day of the year, when it moves to P_0. In this case, price discovery is extremely slow and the metric will be close to one. This measure focuses solely on pricing outcomes and pays no attention to the method by which price discovery actually occurs. Timeliness so defined is affected by the level of volatility in individual share prices in that greater volatility tends to inflate the timeliness metric. To take account of this tendency, as Beekes and Brown (2006) we deflate the raw timeliness metric by one plus the absolute return over the period for which timeliness is calculated and denote the result '*Timeliness Deflated*'.

The model used to investigate the timeliness of price discovery is:

$$Timeliness\ Deflated_{it} = \beta_0 + \beta_1 Gov49_{it} + \beta_2 Family_{it} + \beta_3 Instown_{it}$$

$$+\beta_4 Size_{it} + \beta_5 Leverage_{it} + \beta_6 Volatility_{it} + \beta_7 Goodnews_{it}$$
$$+ \beta_8 Common_{it} + \beta_9 Common \cdot Gov7_{it} + \beta_{10} Common \cdot Family_{it}$$
$$+ \beta_{11} Common \cdot Instown_{it} + \gamma_j + \delta_k + \lambda_t + \theta_{jt} + \mu_{kt} + \varepsilon_{it} \quad (3)$$

where the variables are as previously defined.

Our predictions are as follows. We expect price discovery for better-governed firms to be more timely, as reflected in a negative coefficient on β_1 to (H_{2A}). We expect common law firms also to have greater timeliness, as reflected in a negative coefficient on *Common* (β_8). We examine the incremental impact of CG in common law countries and further expect better-governed firms in common law countries to be more timely, as reflected in a negative coefficient on *Common·Gov7* (β_{11}).

3.3 Estimation

For comparison purposes, the results tables in this paper also show the pooled cross-section and time series Ordinary Least Squares (OLS) regression methods with standard errors robust to the presence of heteroskedasticity. In addition, all standard errors are clustered by the individual firm. However, to acknowledge the possible endogenous relationship between CG and disclosure, and CG and timeliness, we use the 2-step Generalized Method of Moments (2-GMM) estimation methods robust to heteroskedasticity, with the standard errors clustered by firm.

The 2-GMM method controls for endogeneity in CG (and ownership) and requires the selection of appropriate instruments. To enable this method to work effectively, the instrument chosen must be contemporaneously uncorrelated with the error, but highly correlated with the regressor for which it serves as an instrument (Kennedy, 2003, p.159). Selecting an appropriate instrument for CG is not without challenge. Although some researchers have used prior year CG as an instrument for current year CG, this is likely to be inappropriate given the inertia in governance structures in adjacent years (Brown, Beekes and Verhoeven, 2011). We instead use two instruments for firm CG in our models: average sector level of CG and the average country level of CG, in both cases excluding the observation in question from the calculation. The industry and country level CG provide a benchmark of quality which firms may seek to achieve. These instruments are chosen because we do not expect a direct relationship between the error term in our models and the

average industry CG or the average country CG, although we expect there to be similar CG expectations for firms in the same industry and in the same country. For the share ownership variables, family ownership (*Family*) and block institutional share ownership (*Instown*), we use the average country and industry sector as instruments, for similar reasons.

We use the Hansen J-test to check the validity of instruments used in our estimations where a rejection of the null hypothesis casts doubt on validity. In addition, we also test for underidentification, 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 underidentified (Baum, Schaffer and Stillman, 2007). We also include the F-statistic from a test of the excluded instruments in the first stage regressions to provide further assurance that the instruments are valid. The results from these tests are routinely reported in our results tables. We find that the chosen instruments are robust in the majority of cases.

4. Document Count Models

4.1 Sample and Descriptive Statistics

Table 1, panel A shows the number of observations by country and year and mean values of our CG variables by country. We include nineteen countries in our dataset for the period 2003 – 2008 where we could obtain all necessary data. For five countries (France, Japan, Portugal, Singapore, South Korea) we were unable to obtain complete data for all years covered by our study, as indicated in the table. Our final sample includes 8,042 firm-year observations relating to 2,145 unique firms. It is noticeable that this sample has a large proportion of companies from Japan and the UK (25 and 28 per cent respectively) and we will consider the implications later in our analysis. The average firm in our sample meets 62 per cent of the CG requirements as measured by *Gov7*. Japan has the lowest overall CG rating on average (*Gov7* mean = 0.4) perhaps due to the existence of large boards of directors and a lack of independent board membership (Uchida, 2011), whereas Canada has the highest (*Gov7* mean = 0.87) despite the large proportion of family ownership in Canada. With regard to audit and board quality, the average firm meets 58 per cent of the governance criteria for both aspects.

XX TABLE 1 XX

Panel B of Table 1 shows the distribution of our sample by legal origin and year, and the mean CG values by legal origin. Fifty-four per cent of observations arise from common law countries. Tests of the differences in means for all measures of CG classified by legal origin reveal significantly greater levels in common law countries ($p < 0.001$). Panel C shows the sample distribution by industry sector and year, and the mean CG values by industry sector. We made a conscious decision to include all sectors in our study and to use sector specific indicator variables in pooled cross section and time series Ordinary Least Squares (OLS) estimations.[9] In our sample, 20 per cent of observations are from the Industrials sector, 18 per cent each from Consumer Discretionary and Financials, 12 per cent from the Materials sector and 10 percent from Information Technology. Other sectors each comprise less than 10 per cent of the sample. Companies from the Energy sector have the highest average aggregate CG in our sample (*Gov7* mean = 0.73), perhaps due to closer regulatory scrutiny of these companies which include mining and resource companies. The lowest aggregate CG is in the Information Technology sector (*Gov7* mean = 0.59), which may be due to the demand for more executive board members with substantial technical knowledge both to participate in board-level decisions and to protect the firm's intellectual capital.

Table 2 shows the mean values of the variables used in the document count models (excluding CG which was included in Table 1). The left hand panel (columns 1-8) relates to the full sample of observations (*N*=8,042) and the right hand side (columns 9-11) provides information on ownership variables (*N*=5,051) where we are able to obtain matching ownership data for our main sample from OSIRIS. The mean number of documents per year (*Doc Count*) is 82 which equates to roughly two documents per week on average. It is noticeable that Australia has the greatest number of documents per year, whereas Italy has the fewest.[10] Just under half of the observations in our sample relate to years when firm performance was above the market level (*Goodnews*).

XX TABLE 2 XX

[9] Many corporate governance studies exclude the financials and utilities sectors from their sample due to the differing regulations imposed on these sectors. To take account of this in sensitivity analysis, we exclude the financials and utilities sectors, re-estimate the results and reach similar conclusions.

[10] For Italy we were only able to obtain data on company reports, rather than company announcements as is the case for other countries. Exclusion of Italy from our sample and re-estimating the results does not change our conclusions.

Examining the values by legal origin in Table 2 panel B, we find a statistically greater average disclosure quantity (*Doc Count*) in common law compared with civil law countries (p <0.001). With regard to ownership structures, there is a statistically significant greater level of family and institutional ownership (*Instown*) in common law compared with civil law countries (p <0.001). In panel C we show the mean values of variables by sector. Firms in the Financials and Energy sectors release more documents on average than firms in other sectors.

Variable correlations (not tabulated) show *Gov7* is positively correlated with the other measures of CG used (*Audit* and *Board*) at r=0.69 or better. *Gov7* is positively correlated with the log of the number of documents released (*Ldocs*) (r = 0.37) with cross listing (r = 0.25), consistent with cross listed firms being associated with better CG when they cross list on a USA stock exchange.

4.2 Results for Document Count Models

Table 3 shows the relation between CG, ownership and the quantity of disclosure as proxied by the natural log of the number of company announcements released to the stock market (*Ldocs*). Recall from our hypothesis H_{1A} we expect better-governed firms to release more information to the stock market, as reflected in a positive coefficient on *Gov7*. Consistent with our prediction and evidence from Australia (Beekes and Brown, 2006), when we estimate our model for all countries in our sample by OLS methods, we find CG has a positive association between CG and disclosure (column 1, Table 3). Inclusion of variables for firms' ownership structure (*Instown* and *Family*) reduces the sample size to 5,051 observations, but we continue to find this main result for *Gov7* (column 2, Table 3). Block institutional ownership (*Instown*) has no significant influence on disclosure levels, but family share ownership (*Family*) results in fewer disclosures. Therefore better-governed firms release more information, but firms with greater levels of family ownership are more likely to retain the information within the firm.

XX TABLE 3 XX

Controlling for endogeneity using the two-step Generalised Method of Moments estimation method (2-GMM), we find comparable results for *Gov7*, but *Family* is no longer statistically significant (column 4, Table 3). Results from the Hansen's J-test suggest our chosen

instruments in these models are relatively robust and endogeneity is a concern in the model that includes the ownership variables, suggesting 2-GMM results are appropriate in this instance. The results on control variables are mostly consistent with our expectations: larger firms, firms with more leverage, firms with greater volatility in performance and firms which are cross-listed tend to make more frequent disclosures. Interestingly contrary to some prior evidence from (Lev and Penman, 1990), firms with better than average performance (*Goodnews*) release fewer documents, suggesting a conservative approach to disclosure policy when there is good news.

We also obtain results including a dummy variable for legal origin, *Common*; they are reported in Table 4. Results in columns 1 and 2 are estimated by OLS and results in columns 3 and 4 are estimated by 2-GMM for all countries in our sample. In column 1, we observe that *Gov7* has a positive association with disclosure, and although the interaction term *Common·Gov7* (which captures the incremental effect for better-governed firms in common law countries) is positive, it is not significant. This suggests that better-governed firms in common law countries do not release significantly more documents than better-governed firms in civil law countries. Therefore firms with better CG are inclined to release greater amounts of information to the market to indicate their transparency to investors irrespective of their country's legal origin. However, the overall level of disclosure for all firms in common law countries is greater as reflected in the significant and positive coefficient on *Common*. Including the ownership variables and interacting these with the dummy variable for legal origin, *Common*, we find significant results for the level of disclosure by better-governed firms in common law countries and also incrementally lower disclosure by firms with greater family ownership in common law countries (*Common·Family*, column 2). There are no significant results for the level of block institutional ownership (*Instown*). Other variables are similar in magnitude and have the same sign as previously reported. Comparable results are obtained when controlling for endogeneity using 2-GMM (columns 3 and 4 of Table 4) except for *Common·Family*, which is no longer significant. Results from the Hansen test indicate our chosen instruments are relatively robust, although the endogeneity test is rejected at the 10 per cent level. This would suggest our 2-GMM results are the most credible.

XX TABLE 4 XX

To summarise to this point, it would appear that firms generally disclose more information in common law countries. Also CG has an impact on disclosure in both civil and common law countries, but the impact is incrementally greater in common law countries. We find little evidence that ownership structure has any significant impact on the disclosure levels after controlling for endogeneity.

Next, we test the robustness of the results observed in Tables 3 and 4. First to consider the impact of the sample concentration in Japan and UK, we exclude these countries and re-estimate the results (tabulated in columns 5-8 of Tables 3 and 4). Irrespective of the large sample size difference, the coefficients' signs and significance are similar to the estimates including all countries for our CG variable, *Gov7*, suggesting those results are relatively robust. We then exclude countries with the smallest number of observations (Portugal, *N*=35 and South Korea, *N*=28) from our overall sample and re-estimate our models, with similar results (not tabulated). We also exclude firms from the financials (*N*=1,433) and utilities (*N*=284) sectors and find comparable results (not tabulated).

We also test the robustness of our results to a number of alternative variable definitions (the results of which are not tabulated). First, we use alternative definitions for firm size, i.e. the natural log of sales revenue in $US and the natural log of total assets in $US, and results are unchanged. Second we use alternative aggregate CG indices from prior literature in place of *Gov7*; specifically we use *Gov24* (Chung, Elder, Kim, 2010) and *Gov41* (Aggarwal *et al.* 2011)[11]. We find the statistical significance of CG is sensitive to these alternative aggregate measures of CG in some models, although we believe this is due to *Gov24* and *Gov41* including items not expected to influence disclosure in some countries. To investigate this further, we estimate our models using two alternative measures of CG that are focused on aspects that could influence disclosure levels in the firm. The first variable is *Board*, which evaluates board quality; it includes factors such as the board of directors' independence and separation of the roles of CEO and Chairman. The second variable is *Audit*, which focuses on the roles of the auditor and the audit committee (see Appendix for details on the measurement of these variables). Our results are robust to using *Board*, although in 2-GMM models *Audit* is not statistically significant. We also estimate our models using the raw

[11] The simple correlation (not tabulated) between *Gov7* and these alternative measures of CG is 0.83 or higher.

document count variable as the dependent variable, using Poisson regression methods to allow for count dependent variables. The results are comparable to those reported earlier.

To investigate the results obtained for ownership, we collect data on the percentage of closely held shares from Worldscope (*N*=7,581), which incorporates family ownership, director ownership and other individuals who hold over 5 per cent of the share capital and re-estimate the models.[12] We find closely held shares (*Closeheld*) are negatively associated with the level of disclosure (p =0.01). When variables for legal origin are included, the significance level of *Closeheld* is 10 per cent. Also the interaction between *Closeheld* and *Common* is not statistically significant, suggesting the influence of closely held shares on disclosure levels is no different in common law countries. Our results on *Gov7* are comparable with those previously reported. These results suggest close ownership leads to secretive behaviour, especially where there is weaker investor protection. We conclude that our results for this section are relatively robust and confirm better CG is associated with greater disclosure. Furthermore, individual firm-level CG would appear to have greater influence on disclosure levels in common law countries. Results also indicate close ownership can result in withholding information from the market.

5 The Timeliness of Price Discovery

5.1 Sample and Descriptive Statistics

Panel A of Table 5 shows the number of observations by country and year, and the mean value for the three CG variables for the timeliness of price discovery sample. There are 24 countries in the sample, where we could obtain data on firm stock prices and earnings release dates to calculate the timeliness of price discovery to match the CG data we have for firms with year ends between 1 January 2003 and 31 December 2008. We are unable to obtain data for all years for South Korean firms. The primary sample comprises 35,965 firm-year observations relating to 8,471 unique firms. Many observations are for firms in the USA, Japan and the UK (68 per cent, 9 per cent and 6 per cent of the sample respectively), the implications of which we consider later in our analysis.

XX TABLE 5 XX

[12] The average level of close shareholding is 29.4% in the document count sample.

In this sample, many firms meet the minimum standard of CG disclosure with 72 per cent of *Gov7* criteria being met on average. Japan again has the lowest overall CG on average with only 40 per cent of governance criteria being satisfied (*Gov7* mean = 0.4), whereas Canada has the highest (*Gov7* mean = 0.87). Unsurprisingly, since the Sarbanes Oxley Act the USA has the highest average audit quality (*Audit* mean=0.87), compared with the sample average of 0.76. Board quality is lowest in Japan (*Board* mean = 0.33) perhaps due to the presence of insiders on many Japanese boards (Uchida, 2011), compared with the sample average of 0.66. Panel B of Table 5 shows the sample composition by legal origin. In our sample, 81 per cent of observations relate to countries of common law legal origin and CG quality for all three measures of CG is statistically higher in common law countries ($p < 0.001$). Panel C of Table 5 shows the distribution of industrial sectors in our data using GICS sector definitions. The largest sector is Financials representing 19 per cent of observations, and the smallest is Telecommunications, which represents 2 per cent of the sample.[13]

Table 6, panel A shows the mean values of the firm-level variables (excluding CG, which is included in Table 5) in the timeliness of price discovery models by country. In the left panel (Columns 1 – 7) there are mean values for variables included in the base model (*N*=35,965), and in the right panel (columns 8 – 1 0) there are descriptive statistics relating to additional ownership variables sourced from OSIRIS (*N*=21,243). The timeliness measure (*Timeliness Deflated*) ranges from an average of 0.12 in Portugal and 0.23 in the USA, suggesting the USA has less timely price discovery on average than other sample countries. Although this may seem counter-intuitive, it may be due to the composition of the USA sample which contains significant variation in terms of firm size. Indeed the USA has the smallest mean firm size (*Size*) in our sample, see Panel A of Table 6. Panel B of Table 6 shows the mean values of variables by legal origin. Firms in common law countries are generally less timely (*Timeliness Deflated*), smaller in Size, more highly geared (*Leverage*) and have more cross-listings in the USA. For all variables in our study, there is a statistically significant difference in the means of the civil law and common law countries (p <0.001). Panel C shows the mean variable values by GICS sector. We find utilities have the most timely price discovery (*Timeliness Deflated*) perhaps due to regulatory requirements to make additional disclosures on a timely basis. Healthcare has the lowest timeliness.

[13] In sensitivity analysis we exclude the financials and utilities sectors as they are subject to additional disclosure requirements in many countries. The conclusions are similar.

XX TABLE 6 XX

Correlations (not tabulated) show *Board* and *Audit* sub-indices of CG are highly correlated with *Gov7* (r = 0.87 and r = 0.74 respectively). Firm size (*Size*) is negatively correlated with *Timeliness Deflated* (r = -0.36), i.e. larger firms have more timely price discovery, but there is a weak negative correlation between firm size (*Size*) and *Gov7* (r = -0.12). Firms with more volatile performance (*Volatility*) have less timely price discovery (r = 0.44). For the sub-sample where we have ownership data, Family ownership (*Family*) is negatively correlated with block holdings of institutional investors (*Instown*) (r = -0.11) indicating family owned firms are less likely to have a large proportion of institutional ownership. We also find *Gov7* is weakly negatively correlated with *Instown* (r = -0.10) and *Family* (r = -0.03), hinting that substitution effects may be at work between ownership structures and other CG mechanisms.

5.2 Results from Timeliness of Prices Models

Table 7 shows the results for models of the relationship between CG, ownership and the timeliness of price discovery. Columns 1 to 4 show results for all countries in our sample. We include both OLS and 2-GMM results in our table for comparison purposes. Recall from our hypothesis H_{2A}, we expect more timely price discovery for better-governed firms (i.e. a negative coefficient on CG).

XX TABLE 7 XX

Our results show *Gov7* is positive and significant, suggesting less timely price discovery for firms with better governance (column 1, Table 7). Therefore rather than a complementary relationship between CG, we find evidence to suggest there is a substitution relationship (i.e. firms with better CG tend to be more transparent in the sense that price discovery takes longer for them). Although inconsistent with our hypothesis and results for Australia (Beekes and Brown, 2006), this result is consistent with results for US companies from prior research (e.g. Bushman *et al.* 2004 find an inverse relationship between earnings timeliness and CG). Similarly, when we include the ownership variables, *Gov7* is reliably positive and significant (column 2, Table 7). Interestingly, family ownership (*Family*) is associated with more timely price discovery, consistent with evidence which suggests family firms wish to be perceived as being forthcoming with information. Block ownership by institutional investors (*Instown*)

has no significant effect on the timeliness of price discovery. When controlling for endogeneity in 2-GMM estimation, as in columns 3 and 4 of Table 7, we find comparable results. We note at this point that our instruments appear to be robust from the Hansen's J-statistic and the Kleibergen-Paap rk LM diagnostic tests do not raise any undue concern. Also, the endogeneity test suggests that endogeneity is not a key issue in these estimations. Control variables in these models are as expected: larger firms are associated with more timely price discovery, along with firms with good overall performance (*Good news*). However, firms with more volatile performance (*Volatility*) and greater leverage have less timely price discovery.

Turning to the influence of a country's legal origin on the timeliness of price discovery, we include a dummy variable to capture any association with legal origin. The results are reported in Table 8. *Gov7* is positive and statistically significant suggesting better CG is associated with more disclosure, although we find no reliable evidence of incrementally greater disclosure in common law countries since *Common·Gov7* is insignificant (column 1, Table 8). The ownership variables and interactions with the common law dummy variable are also insignificant (column 2, Table 8). Controlling for endogeneity in columns 3 and 4, we find *Gov7* has comparable results, although the ownership variables are now significant. *Instown* is positive, suggesting lower timeliness of price discovery with institutional ownership, although the interaction term *Common·Instown* is not significant. The main effect for *Family* is not significant but the interaction term *Common·Family* is reliably negative, indicating more timely price discovery in common law countries when there is greater family ownership.

XX TABLE 8 XX

Recall we noted from Table 5 that Japan, UK and USA constitute a relatively large proportion of our overall sample. We exclude observations for these countries and re-estimate the models. The results are reported in columns 5 to 8 of Tables 7 and 8. The coefficient signs and significance are generally comparable to earlier results, except for the ownership variables which are not statistically significant. Despite the large drop in the number of observations included in the estimates, the explanatory power of the models is similar. We conclude that our results for *Gov7* are relatively robust to the exclusion of UK, Japan, USA from the estimation sample, although the influence of ownership does not appear

robust. We next exclude South Korea, for which we have only *N*=28 observations, and re-estimate the results (not tabulated); our conclusions are unaffected. We also exclude firms from the financials (*N*=6,884) and utilities (*N*=995) sectors and find comparable results (not tabulated).

We next test the robustness of the results to alternative variable definitions. We use alternative measures of firm size: the natural log of Total Assets in $US and the natural log of total sales in $US; although the significance of *Gov7* and *Family* is sensitive to this change in some models, our broad conclusions are the same. To test the sensitivity of our results to the measure of CG, we use alternative measures of composite CG from the literature in place of *Gov7*: as before we use *Gov24* from Chung, Elder Kim (2010) and *Gov41* from Aggarwal, *et al.* (2011). Our conclusions from these estimations are unchanged, although the significance of CG and the ownership variable is sensitive to this change in some specifications. Firstly, we re-estimate our results using our sub-indices of CG, *Audit* and *Board* (not tabulated). We find comparable results for *Audit*, but the significance of *Board* is sometimes sensitive in these estimations. This suggests board quality is less influential for the timeliness of price discovery, perhaps due to inadequate board structures or insufficient experience among outside directors to monitor senior managers effectively. To test the sensitivity of our results to the definition of ownership, we collect additional data on the percentage of closely held shares (*Closeheld*) from Worldscope, resulting in 26,225 observations.[14] We use this variable in place of our other ownership variables in models. Although *Closeheld* is not statistically significant in OLS estimations, after controlling for endogeneity we find comparable results for *Gov7*. However, more closely held firms are associated with more timely price discovery. The interaction term *Common·Closeheld* is positive and significant, suggesting that in common law countries, price discovery is less timely for firms with more closely held shares.

In summary, our results are broadly comparable; better-governed firms are associated with faster price discovery. Family ownership may actually enhance the timeliness of information discovery in prices, but this effect is restricted to common law countries where there is a higher level of investor protection. We find no reliable evidence that institutional ownership affects the timeliness of price discovery in our sample. We do find the extent to which the firm is closely held is associated with less timely price discovery in common law countries.

[14] The average close ownership in the timeliness of price discovery sample is 27 per cent of share capital.

6. Conclusion

We investigate whether better-governed firms are associated with greater disclosure and more timely price discovery. We investigate these issues using a multi-country sample of firms between 2003 and 2008 which enables us to examine results at firm and country levels. Our estimation methods control for potential endogeneity in CG and ownership. We find better governance is associated with a greater number of disclosures, but not more timely price discovery. This would suggest that firms with better CG substitute governance for greater transparency, proxied by more timely release of information to the market, or alternatively that market participants take longer to process the greater amount of information disclosed by better-governed firms to the market place. With regard to the level of ownership, in some estimations, family (institutional) ownership is associated with faster (slower) price discovery, although this result is sensitive to the countries included in the estimates. Firms with greater proportions of closely held shares are associated with fewer disclosures and less timely price discovery, which is consistent with the view that firms controlled by insiders are less willing to release information to outside parties.

In all countries, irrespective of legal origin, we find at the individual firm level, CG positively influences the level of firm disclosure, consistent with prior research for Australia (Beekes and Brown (2006). However the effect of CG on disclosure is greater in common law countries as expected. We attribute this finding to better investor protection which encourages firms to disclose more information. With regard to timeliness, we find better CG is associated with lower timeliness of price discovery. This is contrary to prior evidence and suggests better-governed firms substitute 'better' CG for greater transparency. We also find evidence that closely held shares are associated with less transparency.

Our results contribute to the growing literature on CG and show CG can have a positive influence on the level of information available about a firm. The results relating to the association between CG and the timeliness of price discovery are surprising and worthy of further investigation. Future work we have in progress examines the effect of CG and ownership on analyst following and the properties of analyst forecasts. As the results of this study show, better-governed firms release more information. Thus a question remains: is this information processed effectively by analysts, and if so, how is it reflected in attributes of

their forecasts? The answer may shed further light on our results for the timeliness of price discovery and help explain some unexpected findings.

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Table 1: Document Count Sample Number of Observations and Mean Values for Measures of Corporate Governance

PANEL A: By country

	Number of observations						Total Sample		Mean values for corporate governance (2003 – 2008)		
Country	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**N**	**%**	**Gov7**	**Audit**	**Board**
Australia	62	63	99	98	96	75	493	6.13	0.60	0.46	0.61
Belgium	0	12	21	23	19	16	91	1.13	0.49	0.32	0.48
Canada	175	167	151	164	146	182	985	12.25	0.87	0.73	0.94
Denmark	18	21	21	21	20	27	128	1.59	0.63	0.45	0.73
Finland	26	27	29	31	31	31	175	2.18	0.73	0.52	0.83
France	0	27	31	40	37	63	198	2.46	0.45	0.54	0.43
Greece	10	19	25	33	31	26	144	1.79	0.54	0.34	0.46
Hong Kong	47	53	104	102	101	94	501	6.23	0.58	0.64	0.43
Ireland	6	13	14	16	16	17	82	1.02	0.68	0.63	0.63
Italy	18	9	22	29	30	37	145	1.80	0.48	0.47	0.43
Japan	0	429	531	555	514	0	2,029	25.23	0.40	0.42	0.33
Netherlands	17	26	30	23	9	17	122	1.52	0.62	0.45	0.61
Norway	18	21	20	21	20	26	126	1.57	0.57	0.45	0.58
Portugal	0	0	10	8	8	9	35	0.44	0.47	0.43	0.44
Singapore	0	0	0	0	42	56	98	1.22	0.70	0.76	0.58
South Korea	0	0	0	0	14	14	28	0.35	0.56	0.52	0.52
Spain	43	33	48	50	46	44	264	3.28	0.44	0.46	0.35
Sweden	6	6	37	44	42	48	183	2.28	0.71	0.51	0.88
UK	184	196	491	471	432	441	2,215	27.54	0.76	0.73	0.68
All countries	630	1,122	1,684	1,729	1,654	1,223	8,042	100.00	0.62	0.58	0.58

PANEL B: By legal origin

	Number of observations						Total Sample		Mean values for corporate governance		
Legal Origin	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**N**	**%**	**Gov7**	**Audit**	**Board**
Civil law	156	630	825	878	821	358	3,668	45.61	0.47	0.44	0.43
Common law	474	492	859	851	833	865	4,374	54.39	0.74	0.69	0.70
All countries	630	1,122	1,684	1,729	1,654	1,223	8,042	100	0.62	0.58	0.58

PANEL C: By Global Industry Classification Standard industrial sector

	Number of observations						Total Sample		Mean values for corporate governance		
GICs sector	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**N**	**%**	**Gov7**	**Audit**	**Board**
Consumer Discretionary	102	200	325	335	303	218	1,483	18.44	0.60	0.58	0.55
Consumer Staples	49	94	128	123	112	81	587	7.30	0.61	0.56	0.57
Energy	38	41	59	65	61	97	361	4.49	0.73	0.67	0.70
Financials	121	180	297	305	307	223	1,433	17.82	0.61	0.57	0.56
Health Care	27	44	75	78	76	56	356	4.43	0.65	0.57	0.64
Industrials	110	226	342	339	332	232	1,581	19.66	0.61	0.58	0.56
Information Technology	52	119	177	191	189	94	822	10.22	0.59	0.56	0.54
Materials	77	143	186	198	178	148	930	11.56	0.66	0.59	0.65
Telecommunication Services	24	32	39	37	41	32	205	2.55	0.63	0.56	0.58
Utilities	30	43	56	58	55	42	284	3.53	0.62	0.56	0.57
Total	630	1,122	1,684	1,729	1,654	1,223	8,042	100	0.62	0.58	0.58

Note: The sample comprises firms with year ends between 1 January 2003 and 31 December 2008 covered by the ISS Global database. This table shows the number of observations per year and the mean values for our corporate governance variables by country in Panel A, by legal origin in panel B and by Global Industry Classification Standard sector in panel C. The Civil law countries in our sample are: Belgium, Denmark, Finland, France, Greece, Italy, Japan, Netherlands, Norway, Portugal, South Korea, Spain and Sweden and the Common law countries in our sample are: Australia, Canada, Hong Kong, Ireland, Singapore and UK. Our measures of corporate governance are *Gov7*, Audit and Board. *Gov7* is a measure of corporate governance between 0 and 1 where higher values are associated with 'better' corporate governance, Audit is a measure of the audit quality between 0 and 1 where higher values are associated with 'better' audit quality and Board is a measure of board quality between 0 and 1 where higher values are associated with 'better' board quality. For further details on the governance measures, see the Appendix.

Table 2: Descriptive Statistics for Variables in the Document Count Models

Panel A: Mean values by Country

Country	N	Doc Count	Ldocs	Size	Leverage	Volatility	Goodnews	Crosslist	N	Instown	Family
Column No:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Australia	493	145.74	4.69	7.97	0.26	0.01	50.30%	8.72%	423	37.50%	0.97%
Belgium	91	34.44	3.26	8.21	0.29	0.01	40.66%	5.49%	82	21.52%	1.46%
Canada	985	82.57	4.31	7.64	0.23	0.02	40.30%	47.82%	335	8.56%	3.80%
Denmark	128	68.45	4.10	7.97	0.29	0.02	56.25%	7.81%	109	16.28%	0.24%
Finland	175	95.54	4.38	7.53	0.22	0.02	53.71%	9.71%	165	11.02%	3.29%
France	198	37.55	3.12	8.98	0.25	0.02	39.90%	16.16%	185	16.41%	1.74%
Greece	144	41.30	3.32	7.36	0.28	0.02	45.83%	11.81%	119	7.34%	14.83%
Hong Kong	501	30.23	3.23	7.86	0.18	0.02	45.71%	4.19%	238	22.72%	3.80%
Ireland	82	77.76	3.97	7.75	0.34	0.02	35.37%	37.80%	64	10.28%	2.83%
Italy	145	14.31	2.50	8.65	0.32	0.01	45.52%	13.79%	135	10.73%	3.11%
Japan	2,029	45.54	3.74	7.99	0.21	0.02	47.17%	4.53%	810	7.51%	0.55%
Netherlands	122	28.89	3.07	8.25	0.26	0.01	56.56%	30.33%	87	20.91%	0.06%
Norway	126	122.21	4.69	7.47	0.25	0.02	46.03%	15.08%	101	17.59%	0.41%
Portugal	35	84.91	3.88	8.52	0.41	0.01	54.29%	17.14%	35	24.03%	0.06%
Singapore	98	81.71	4.17	7.53	0.24	0.02	36.73%	2.04%	78	25.10%	2.35%
South Korea	28	65.71	4.14	9.42	0.28	0.02	53.57%	42.86%	26	11.58%	3.56%
Spain	264	42.41	3.61	8.45	0.23	0.01	52.65%	12.50%	206	19.39%	4.33%
Sweden	183	65.43	3.91	8.16	0.25	0.02	45.36%	3.83%	164	11.29%	1.31%
UK	2,215	133.32	4.40	7.19	0.23	0.02	50.70%	11.06%	1,689	15.29%	4.82%
All countries	8,042	82.24	4.00	7.75	0.23	0.02	47.45%	13.93%	5,051	15.83%	3.16%

Panel B: Mean values by Legal Origin

Legal Origin	N	Doc Count	Ldocs	Size	Leverage	Volatility	Goodnews	Crosslist	N	Instown	Family
Column No:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Civil law	3,668	50.00	3.68	8.08	0.23	0.02	47.82%	8.37%	2,224	12.31%	2.20%
Common law	4,374	109.28	4.27	7.47	0.23	0.02	47.14%	18.59%	2,827	18.60%	3.92%
All countries	8,042	82.24	4.00	7.75	0.23	0.02	47.45%	13.93%	5,051	15.83%	3.16%

Panel C: Mean Values by Global Industry Classification Standard industrial sector

	N	Doc Count	Ldocs	Size	Leverage	Volatility	Goodnews	Crosslist	N	Instown	Family
Column No:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Consumer Discretionary	1,483	67.91	3.89	7.42	0.23	0.02	40.26%	10.32%	905	16.45%	4.71%
Consumer Staples	587	88.88	4.03	7.97	0.25	0.01	44.97%	8.86%	339	15.06%	2.94%
Energy	361	96.73	4.17	8.12	0.22	0.02	58.45%	32.69%	232	13.41%	2.02%
Financials	1,433	119.17	4.17	8.38	0.23	0.02	48.99%	12.14%	1,011	17.11%	2.95%
Health Care	356	89.61	4.13	7.30	0.19	0.02	41.29%	24.16%	225	16.89%	1.79%
Industrials	1,581	66.92	3.93	7.47	0.24	0.02	53.19%	5.12%	999	15.44%	3.33%
Information Technology	822	65.59	3.89	7.05	0.13	0.02	39.05%	13.87%	442	14.53%	3.68%
Materials	930	76.78	4.01	7.70	0.24	0.02	49.89%	20.75%	568	17.87%	2.61%
Telecom. Services	205	84.20	4.08	8.82	0.29	0.02	44.88%	47.80%	140	9.21%	1.30%
Utilities	284	79.31	3.96	8.85	0.41	0.01	62.32%	17.96%	190	12.99%	1.32%
All sectors	8,042	82.24	4.00	7.75	0.23	0.02	47.45%	13.93%	5,051	15.83%	3.16%

Note: The sample comprises firms with year ends between 1 January 2003 and 31 December 2008 covered by the ISS Global database. There are 8,042 observations in the main dataset from nineteen countries. Due to data availability from OSIRIS, the sample including the percentage of block-holding by institutional investors (Instown) and family ownership (Family) is reduced to 5,051 observations. This table shows the mean values for our variables used in the document count models by country in Panel A, by legal origin in panel B and by Global Industry Classification Standard sector in panel C. The Civil law countries in our sample are: Belgium, Denmark, Finland, France, Greece, Italy, Japan, Netherlands, Norway, Portugal, South Korea, Spain and Sweden and the Common law countries in our sample are: Australia, Canada, Hong Kong, Ireland, Singapore and UK. Variables are defined in the Appendix.

Table 3: The relationship between corporate governance, ownership and document disclosure frequency

Dependent variable – Ldocs

		All Countries				Excluding Japan, UK, USA			
Estimation Method:	**Ex.**	**OLS**	**OLS**	**2-GMM**	**2-GMM**	**OLS**	**OLS**	**2-GMM**	**2-GMM**
Column Number:	**Sign**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Gov7	(+)	0.547	0.580	0.467	0.520	0.533	0.534	0.475	0.491
		(6.73)***	(5.73)***	(3.70)***	(3.40)***	(4.67)***	(3.85)***	(3.00)***	(2.64)***
Instown	(?)		-0.047		-0.093		-0.085		-0.082
			(0.66)		(0.95)		(0.98)		(0.70)
Family	(?)		-0.273		-0.018		-0.016		-0.045
			(1.88)*		(0.12)		(0.10)		(0.27)
Size	(+)	0.197	0.219	0.198	0.221	0.162	0.182	0.163	0.181
		(21.05)***	(19.02)***	(21.10)***	(18.97)***	(12.21)***	(11.08)***	(12.45)***	(11.18)***
Leverage	(+)	0.289	0.156	0.290	0.155	0.300	0.202	0.299	0.194
		(4.48)***	(1.96)**	(4.51)***	(1.96)*	(3.06)***	(1.66)*	(3.06)***	(1.59)
Volatility	(+)	9.635	9.428	9.665	9.575	9.228	7.847	9.213	7.967
		(7.06)***	(5.54)***	(7.10)***	(5.65)***	(4.72)***	(3.17)***	(4.72)***	(3.22)***
Goodnews	(+)	-0.044	-0.067	-0.044	-0.064	-0.031	-0.054	-0.032	-0.049
		(3.11)***	(3.66)***	(3.10)***	(3.53)***	(1.60)	(2.18)**	(1.63)	(1.99)**
Crosslist	(+)	0.138	0.132	0.141	0.141	0.145	0.141	0.147	0.147
		(3.27)***	(2.25)**	(3.34)***	(2.40)**	(2.99)***	(1.97)**	(3.02)***	(2.07)**
Hansen's J *p*-value				0.92	0.41			0.81	0.48
Kleibergen-Paap rk LM *p*-value				0.00	0.00			0.00	0.00
Endogeneity test *p*-value				0.36	0.08			0.52	0.92
F-test excluded instr.				385.78***	88.18***			339.77***	96.99***
F-test		29.82***	23.69***	29.91***	24.03***	27.64***	23.41***	27.74***	24.07***
Adj. R^2		0.53	0.56	0.53	0.55	0.61	0.62	0.61	0.62
N		8,042	5,051	8,042	5,051	3,798	2,552	3,798	2,552

* $p<0.1$; ** $p<0.05$; *** $p<0.01$ two tailed tests

Notes: The sample comprises firms with year ends between 1 January 2003 and 31 December 2008 covered by the ISS Global CG Database. Results are estimated using Ordinary Least Squares (OLS) pooled cross section and time series regression with standard errors robust to the presence of heteroskedasticity or by using two step Generalised Method of Moments (2-GMM) estimation methods which are robust to heteroskedasticity and control for endogeneity in corporate governance, as indicated in the column heading. All standard errors are clustered by firm. *t*-statistics are reported in parentheses. All models also have year, industry sector, country, country-year and industry sector-year controls included. Variables are defined in the Appendix.

Table 4: The impact of legal origin on the relationship between corporate governance and ownership on the level of disclosure

Dependent variable – Ldocs

		All countries				Excluding Japan and UK			
	Ex. Sign	**OLS (1)**	**OLS (2)**	**2-GMM (3)**	**2-GMM (4)**	**OLS (5)**	**OLS (6)**	**2-GMM (7)**	**2-GMM (8)**
Gov7	(+)	0.412	0.392	0.342	0.214	0.409	0.294	0.399	0.256
		(3.64)***	(2.73)***	(1.68)*	(0.98)	(2.45)**	(1.64)	(1.84)*	(1.15)
Instown	(?)		-0.170		-0.248		-0.207		-0.205
			(1.45)		(1.24)		(1.50)		(1.02)
Family	(?)		0.226		0.076		0.073		-0.058
			(1.02)		(0.33)		(0.30)		(0.24)
Size	(+)	0.196	0.218	0.197	0.214	0.162	0.181	0.164	0.180
		(21.02)***	(18.92)***	(21.11)***	(18.40)***	(12.29)***	(11.11)***	(12.58)***	(11.27)***
Leverage	(+)	0.284	0.144	0.282	0.153	0.294	0.189	0.291	0.171
		(4.41)***	(1.82)*	(4.38)***	(1.97)**	(3.01)***	(1.55)	(2.98)***	(1.48)
Volatility	(+)	9.675	9.356	9.629	9.057	9.269	7.871	9.196	7.879
		(7.10)***	(5.50)***	(7.08)***	(5.44)***	(4.77)***	(3.18)***	(4.75)***	(3.25)***
Goodnews	(+)	-0.044	-0.066	-0.044	-0.065	-0.031	-0.055	-0.032	-0.054
		(3.09)***	(3.59)***	(3.10)***	(3.51)***	(1.59)	(2.22)**	(1.65)*	(2.17)**
Crosslist	(+)	0.137	0.136	0.138	0.141	0.144	0.140	0.144	0.141
		(3.27)***	(2.33)**	(3.27)***	(2.42)**	(2.99)***	(1.98)**	(2.98)***	(2.05)**
Common	(+)	0.695	0.597	0.891	0.596	0.754	0.241	0.869	0.545
		(4.88)***	(3.64)***	(2.85)***	(1.45)	(4.14)***	(0.56)	(3.05)***	(1.28)
Common·Gov7	(+)	0.252	0.339	0.319	0.658	0.266	0.613	0.272	0.752
		(1.54)	(1.65)*	(1.35)	(1.84)*	(1.14)	(2.13)**	(1.03)	(1.71)*
Common·Instown	(?)		0.194		0.171		0.189		0.095
			(1.30)		(0.72)		(1.09)		(0.39)
Common·Family	(?)		-0.675		-0.197		-0.219		-0.054
			(2.36)**		(0.71)		(0.70)		(0.17)
Hansen's J *p*-value				0.52	0.35			0.58	0.75
Kleibergen-Paap rk LM *p*-value				0.00	0.00			0.00	0.00
Endogeneity test *p*-value				0.64	0.10			0.91	0.57
F-test excluded instr.				364.73***	18.65***			322.17***	10.10***

F test	29.83***	23.18***	29.89***	23.80***	27.66***	23.30***	27.75***	23.63***
Adj. R^2	0.53	0.56	0.53	0.55	0.61	0.62	0.61	0.62
N	8,042	5,051	8,042	5,051	3,798	2,552	3,798	2,552

* $p<0.1$; ** $p<0.05$; *** $p<0.01$ two-tailed tests

Notes: The sample comprises firms with year ends between 1 January 2003 and 31 December 2008 covered by the ISS Global CG Database. Results are estimated using Ordinary Least Squares (OLS) pooled cross section and time series regression with standard errors robust to the presence of heteroskedasticity or by using two step Generalised Method of Moments (2-GMM) estimation methods which are robust to heteroskedasticity and control for endogeneity in corporate governance, as indicated in the column heading. All standard errors are clustered by firm. *t*-statistics are reported in parentheses. All models also have year, industry sector, country, country-year and industry sector-year controls included. Variables are defined in the Appendix.

Table 5: Timeliness Sample Number of Observations and Mean Values for Measures of Corporate Governance

PANEL A: By country

	Number of observations						Total Sample		Mean values for corporate governance (2003 – 2008)		
Country	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**N**	**%**	**Gov7**	**Audit**	**Board**
Australia	78	74	115	114	107	80	568	1.58	0.60	0.47	0.61
Austria	20	18	19	18	18	26	119	0.33	0.55	0.29	0.54
Belgium	24	19	25	27	26	28	149	0.41	0.47	0.29	0.45
Canada	178	175	157	167	153	180	1,010	2.81	0.87	0.73	0.94
Denmark	24	21	21	21	20	27	134	0.37	0.62	0.43	0.72
Finland	27	27	29	31	31	31	176	0.49	0.73	0.52	0.82
France	86	74	81	85	83	80	489	1.36	0.44	0.48	0.43
Germany	84	81	82	86	85	90	508	1.41	0.59	0.42	0.60
Greece	43	42	41	39	37	32	234	0.65	0.50	0.28	0.43
Hong Kong	50	56	108	106	104	96	520	1.45	0.58	0.63	0.43
Ireland	14	15	13	16	16	16	90	0.25	0.67	0.59	0.63
Italy	62	44	69	70	63	70	378	1.05	0.48	0.48	0.41
Japan	479	493	565	579	576	653	3,345	9.30	0.40	0.40	0.33
Netherlands	46	43	42	41	38	35	245	0.68	0.62	0.46	0.61
New Zealand	13	12	16	15	15	15	86	0.24	0.62	0.53	0.60
Norway	20	21	20	21	20	26	128	0.36	0.57	0.45	0.58
Portugal	15	13	14	14	14	16	86	0.24	0.43	0.36	0.35
Singapore	47	49	53	53	52	59	313	0.87	0.67	0.59	0.60
South Korea	0	0	0	0	14	14	28	0.08	0.56	0.52	0.52
Spain	52	36	52	54	49	47	290	0.81	0.45	0.46	0.35
Sweden	45	44	42	46	45	50	272	0.76	0.69	0.44	0.87
Switzerland	59	53	56	61	55	56	340	0.95	0.67	0.61	0.63
UK	181	191	481	471	425	426	2,175	6.05	0.76	0.73	0.68
USA	4,404	4,154	4,106	4,011	3,660	3,947	24,282	67.52	0.78	0.87	0.72
All countries	6,051	5,755	6,207	6,146	5,706	6,100	35,965	100	0.72	0.76	0.66

PANEL B: By legal origin

	Number of observations						Total Sample		Mean values for corporate governance		
Legal Origin	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**N**	**%**	**Gov7**	**Audit**	**Board**
Civil law	1,086	1,029	1,158	1,193	1,174	1,281	6,921	19.24	0.48	0.42	0.44
Common law	4,965	4,726	5,049	4,953	4,532	4,819	29,044	80.76	0.77	0.84	0.72
Total	6,051	5,755	6,207	6,146	5,706	6,100	35,965	100.00	0.72	0.76	0.66

PANEL C: By Global Industry Classification Standard industrial sector

	Number of observations						Total Sample		Mean values for corporate governance		
GICs sector	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**N**	**%**	**Gov7**	**Audit**	**Board**
Consumer Discretionary	1,000	935	1,026	1,022	984	999	5,966	16.59	0.70	0.74	0.65
Consumer Staples	296	289	306	310	296	303	1,800	5.00	0.67	0.70	0.63
Energy	214	205	229	250	248	333	1,479	4.11	0.76	0.81	0.71
Financials	1,190	1,107	1,231	1,171	988	1,197	6,884	19.14	0.71	0.75	0.65
Health Care	695	677	716	727	682	708	4,205	11.69	0.78	0.84	0.72
Industrials	928	880	989	990	946	980	5,713	15.88	0.69	0.72	0.64
Information Technology	1,074	1,014	1,012	977	906	908	5,891	16.38	0.75	0.81	0.68
Materials	380	375	406	411	386	411	2,369	6.59	0.69	0.68	0.64
Telecommunication Services	114	114	119	111	107	98	663	1.84	0.71	0.72	0.67
Utilities	160	159	173	177	163	163	995	2.77	0.73	0.76	0.67
All Sectors	6,051	5,755	6,207	6,146	5,706	6,100	35,965	100.00	0.72	0.76	0.66

Note: The sample comprises firms with year ends between 1 January 2003 and 31 December 2008 covered by the ISS Global and USA corporate governance databases. This table shows the number of observations per year and the mean values for our corporate governance variables by country in Panel A, by legal origin in panel B and by Global Industry Classification Standard sector in panel C. The Civil law countries in our sample are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Japan, Netherlands, Norway, Portugal, South Korea, Spain, Sweden and Switzerland. Common law countries in our sample are: Australia, Canada, Hong Kong, Ireland, Singapore, New Zealand, UK and USA. Our measures of corporate governance are *Gov7*, Audit and Board. *Gov7* is a measure of corporate governance between 0 and 1 where higher values are associated with 'better' corporate governance, Audit is a measure of the audit quality between 0 and 1 where higher values are associated with 'better' audit quality and Board is a measure of board quality between 0 and 1 where higher values are associated with 'better' board quality. For further details see the Appendix.

Table 6: Descriptive Statistics for Timeliness Sample

Panel A: Mean variable values by country

	N	Timeliness Deflated	Size	Leverage	Volatility	Goodnews	Crosslist*	N	Instown	Family
Column No.	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Australia	568	0.14	7.87	0.26	0.01	49.65%	7.92%	455	36.59%	1.03%
Austria	119	0.15	7.74	0.28	0.01	50.42%	3.36%	83	8.67%	5.14%
Belgium	149	0.17	8.02	0.28	0.01	43.62%	4.03%	136	21.89%	1.20%
Canada	1,010	0.20	7.63	0.22	0.02	40.30%	48.22%	338	8.57%	4.03%
Denmark	134	0.17	7.89	0.29	0.02	55.22%	7.46%	114	15.95%	0.51%
Finland	176	0.17	7.50	0.22	0.02	53.98%	9.66%	166	10.93%	3.28%
France	489	0.14	8.75	0.26	0.02	46.22%	18.40%	450	14.93%	2.24%
Germany	508	0.18	8.07	0.22	0.02	50.20%	16.93%	421	8.10%	6.16%
Greece	234	0.19	6.97	0.26	0.02	44.44%	7.69%	183	6.07%	15.82%
Hong Kong	520	0.17	7.82	0.18	0.02	45.00%	4.04%	248	23.49%	3.84%
Ireland	90	0.19	7.74	0.35	0.02	41.11%	41.11%	67	10.32%	3.03%
Italy	378	0.15	8.13	0.31	0.02	45.50%	8.47%	299	16.65%	3.20%
Japan	3,345	0.13	7.81	0.22	0.02	48.61%	4.13%	1,301	7.41%	0.55%
Netherlands	245	0.15	8.09	0.26	0.02	53.47%	29.80%	163	21.16%	0.23%
New Zealand	86	0.13	6.86	0.30	0.01	50.00%	6.98%	72	40.04%	9.82%
Norway	128	0.22	7.49	0.26	0.02	45.31%	15.63%	103	17.25%	0.40%
Portugal	86	0.12	7.81	0.43	0.01	47.67%	12.79%	78	21.21%	0.04%
Singapore	313	0.15	7.32	0.22	0.02	48.56%	4.47%	246	25.48%	1.68%
South Korea	28	0.16	9.42	0.28	0.02	53.57%	42.86%	26	11.58%	3.56%
Spain	290	0.13	8.37	0.23	0.01	52.76%	11.38%	225	18.27%	3.98%
Sweden	272	0.15	8.04	0.24	0.02	47.06%	5.88%	228	11.15%	1.23%
Switzerland	340	0.16	8.05	0.20	0.02	55.88%	16.47%	262	11.07%	6.44%
UK	2,175	0.18	7.17	0.24	0.02	50.71%	11.13%	1,657	15.21%	4.98%
USA	24,282	0.23	5.90	0.54	0.02	45.76%	N/A	13,922	6.37%	6.97%
All countries	35,965	0.21	6.50	0.44	0.02	46.61%	12.62%	21,243	9.37%	5.73%

Panel B: Mean variable values by legal origin

Column No.	Obs. (1)	Timeliness Deflated (2)	Size (3)	Leverage (4)	Volatility (5)	Goodnews (6)	Crosslist* (7)	Obs. (8)	Instown (9)	Family (10)
Civil law	6,921	0.15	7.94	0.24	0.02	49.02%	8.99%	4,238	11.78%	2.93%
Common law	29,044	0.22	6.15	0.49	0.02	46.03%	17.89%*	17,005	8.77%	6.43%
All countries	35,965	0.21	6.50	0.44	0.02	46.61%	12.62%	21,243	9.37%	5.73%

PANEL C: By Global Industry Classification Standard industrial sector

Column No.	Obs (1)	Timeliness Deflated (2)	Size (3)	Leverage (4)	Volatility (5)	Goodnews (6)	Crosslist* (7)	Obs (8)	Instown (9)	Family (10)
Consumer Discretionary	5,966	0.22	6.53	0.43	0.02	41.85%	9.33%	3,622	10.31%	7.19%
Consumer Staples	1,800	0.17	7.13	0.40	0.02	48.72%	7.01%	1,067	10.22%	7.15%
Energy	1,479	0.26	6.98	0.42	0.02	56.66%	30.84%	897	7.74%	4.66%
Financials	6,884	0.16	6.54	0.63	0.02	44.70%	10.84%	3,905	10.50%	5.15%
Health Care	4,205	0.27	5.91	0.38	0.03	45.28%	21.47%	2,320	6.84%	4.62%
Industrials	5,713	0.19	6.53	0.40	0.02	52.20%	5.12%	3,693	10.18%	6.72%
Information Technology	5,891	0.26	5.89	0.33	0.03	42.32%	15.48%	3,234	7.60%	6.32%
Materials	2,369	0.20	7.12	0.40	0.02	50.40%	17.06%	1,525	11.58%	3.66%
Telecommunication Services	663	0.21	7.32	0.48	0.02	45.25%	44.22%	371	8.06%	3.73%
Utilities	995	0.11	7.95	0.60	0.01	60.30%	16.85%	609	6.74%	1.42%
All sectors	35,965	0.21	6.50	0.44	0.02	46.61%	12.62%	21,243	9.37%	5.73%

Notes: The sample includes 35,965 firm-year observations from twenty four countries with year ends between 1 January 2003 and 31 December 2008 which are included on the ISS Global and USA corporate governance databases. *The sample for crosslist excludes USA. Due to data availability from OSIRIS, the sample including the percentage of block-holding by institutional investors (Instown) and family ownership (Family) is reduced to 21,243 observations. This table shows the number of observations per year and the mean values for variables in the timeliness models by country in Panel A, by legal origin in panel B and by Global Industry Classification Standard sector in panel C. The Civil law countries in our sample are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Japan, Netherlands, Norway, Portugal, South Korea, Spain, Sweden and Switzerland. Common law countries in our sample are: Australia, Canada, Hong Kong, Ireland, Singapore, New Zealand, UK and USA. Variables are defined in the Appendix.

Table 7: The relation between corporate governance, ownership and the timeliness of price discovery

Dependent variable: Timeliness Deflated

		All Countries				Excluding Japan, UK, USA			
Estimation Method:	**Ex.**	**OLS**	**OLS**	**2-GMM**	**2-GMM**	**OLS**	**OLS**	**2-GMM**	**2-GMM**
Column Number:	**Sign**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Gov7	(-)	0.038	0.023	0.032	0.024	0.054	0.044	0.041	0.036
		(5.49)***	(2.68)***	(3.73)***	(2.37)**	(4.08)***	(3.05)***	(2.84)***	(2.29)**
Instown	(?)		0.006		0.007		-0.000		0.004
			(0.76)		(0.76)		(0.00)		(0.33)
Family	(?)		-0.042		-0.022		-0.006		0.002
			(3.59)***		(1.77)*		(0.33)		(0.10)
Size	(-)	-0.018	-0.017	-0.017	-0.017	-0.023	-0.020	-0.023	-0.020
		(27.42)***	(20.87)***	(27.08)***	(20.11)***	(12.95)***	(10.51)***	(12.93)***	(10.43)***
Leverage	(-)	0.082	0.076	0.082	0.077	0.093	0.070	-0.017	-0.017
		(16.20)***	(11.89)***	(16.21)***	(12.07)***	(6.55)***	(4.43)***	(5.02)***	(4.67)***
Volatility	(+)	4.545	4.637	4.548	4.635	4.750	4.405	0.092	0.070
		(35.84)***	(27.37)***	(35.85)***	(27.31)***	(13.10)***	(10.10)***	(6.47)***	(4.40)***
Goodnews	(-)	-0.020	-0.013	-0.020	-0.013	-0.016	-0.018	4.762	4.430
		(12.33)***	(6.59)***	(12.34)***	(6.57)***	(4.98)***	(4.71)***	(13.13)***	(10.20)***
Hansen's J *p*-value				0.34	0.25			0.12	0.53
Kleibergen-Paap rk LM *p*-value				0.00	0.00			0.00	0.00
Endogeneity test *p*-value				0.24	0.36			0.13	0.60
F-test excluded instr.				531.08***	119.33***			521.75***	84.85***
F-test		53.48***	31.74***	53.54***	31.75***	10.66***	8.30***	10.64***	8.35***
Adj. R^2		0.32	0.31	0.32	0.31	0.32	0.29	0.32	0.29
N		35,965	21,243	35,965	21,243	6,163	4,363	6,163	4,363

* $p<0.1$; ** $p<0.05$; *** $p<0.01$ two tailed tests

Notes: The sample comprises firms with year ends between 1 January 2003 and 31 December 2008 covered by the ISS Global and USA corporate governance databases. Results in columns 1 to 4 are for the full sample of twenty-four countries and results in columns 5 to 8 exclude Japan, UK and USA from the sample. Results are estimated using Ordinary Least Squares (OLS) pooled cross section and time series regression with standard errors robust to the presence of heteroskedasticity or by using two step Generalised Method of Moments (2-GMM) estimation methods which are robust to heteroskedasticity and control for endogeneity in corporate governance, as indicated in the column heading. All standard errors are clustered by firm. *t*-statistics are reported in parentheses. All models also have year, industry sector, country, country-year and industry sector-year controls included. Variables are defined in the Appendix.

Table 8: The impact of legal origin on the association between corporate governance, ownership, and the timeliness of price discovery

Dependent variable – Timeliness Deflated

		All countries				Excluding Japan, UK, USA			
	Ex. Sign	**OLS (1)**	**OLS (2)**	**2-GMM (3)**	**2-GMM (4)**	**OLS (5)**	**OLS (6)**	**2-GMM (7)**	**2-GMM (8)**
Gov7	(-)	0.035	0.036	0.047	0.048	0.065	0.057	0.057	0.049
		(2.90)***	(2.63)***	(2.96)***	(2.85)***	(4.26)***	(3.53)***	(3.52)***	(2.95)***
Instown	(?)		0.013		0.032		0.004		0.014
			(0.97)		(2.02)**		(0.28)		(0.92)
Family	(?)		-0.018		-0.017		-0.015		-0.006
			(0.90)		(0.85)		(0.74)		(0.30)
Size	(-)	-0.018	-0.017	-0.017	-0.017	-0.023	-0.020	-0.023	-0.020
		(27.39)***	(20.81)***	(26.70)***	(19.65)***	(12.96)***	(10.52)***	(13.05)***	(10.60)***
Leverage	(-)	0.082	0.075	0.081	0.076	0.093	0.070	0.092	0.069
		(16.20)***	(11.84)***	(16.16)***	(11.87)***	(6.56)***	(4.44)***	(6.47)***	(4.39)***
Volatility	(+)	4.545	4.638	4.564	4.652	4.750	4.409	4.736	4.405
		(35.84)***	(27.38)***	(36.00)***	(27.40)***	(13.07)***	(10.09)***	(13.06)***	(10.17)***
Goodnews	(-)	-0.020	-0.013	-0.020	-0.013	-0.016	-0.017	-0.016	-0.017
		(12.32)***	(6.57)***	(12.32)***	(6.51)***	(4.97)***	(4.69)***	(4.97)***	(4.63)***
Common	(-)	0.027	0.030	-0.001	0.005	0.042	0.044	0.020	0.023
		(1.11)	(1.23)	(0.05)	(0.16)	(1.46)	(1.31)	(0.60)	(0.54)
Common·Gov7	(-)	0.004	-0.016	-0.023	-0.035	-0.028	-0.041	-0.053	-0.057
		(0.28)	(0.95)	(1.10)	(1.50)	(1.01)	(1.17)	(1.45)	(1.22)
Common· Instown	(?)		-0.008		-0.012		-0.006		0.030
			(0.49)		(0.47)		(0.27)		(0.65)
Common· Family	(?)		-0.028		-0.040		0.033		-0.023
			(1.18)		(1.91)*		(0.67)		(1.03)
Hansen's J *p*-value				0.14	0.24			0.23	0.40
Kleibergen-Paap rk LM *p*-value				0.00	0.00			0.00	0.00
Endogeneity test *p*-value				0.15	0.19			0.22	0.51
F-test excluded instr.				173.25***	39.53***			55.09***	15.29***
F test		53.26***	31.45***	53.36***	31.47***	10.72***	8.52***	10.69***	8.64***
Adj. R2		0.32	0.31	0.32	0.31	0.32	0.29	0.32	0.29
N		35,965	21,243	35,965	21,243	6,163	4,363	6,163	4,363

* $p<0.1$; ** $p<0.05$; *** $p<0.01$ two tailed tests

Notes: The sample comprises firms with year ends between 1 January 2003 and 31 December 2008 covered by the ISS Global and USA corporate governance databases. Results in columns 1 to 4 are for all countries and results in columns 5 to 8 exclude Japan, UK and USA. Results are estimated using Ordinary Least Squares (OLS) pooled cross section and time series regression with standard errors robust to the presence of heteroskedasticity or by using two step Generalised Method of Moments (2-GMM)

estimation methods which are robust to heteroskedasticity and control for endogeneity in corporate governance, as indicated in the column heading. All standard errors are clustered by firm. *t*-statistics are reported in parentheses. All models also have year, industry sector, country, country-year and industry sector-year controls included. Variables are defined in the Appendix.

APPENDIX A: Firm Level Corporate Governance

This table shows the CG characteristics included in our measures of corporate governance (*Gov7, Audit and Board*). Sub categories for elements of corporate governance (board and audit) have also been identified below.

Table A1: ISS Governance Variable Definitions

	Mean values for components of *Gov7*	**Documents sample *N*=8,042**	**Timeliness of Prices sample *N*= 35,965**
1	Board is controlled by more than 50% independent outside directors	.354	.733
2	Size of board of directors is greater than 5 but not more than 15 members	.870	.880
3	The CEO and chairman duties are separated or a lead director is specified	.679	.620
4	Board members are elected annually	.406	.424
5	Audit committee composed solely of independent outsiders	.443	.741
6	Auditors were ratified at the most recent annual meeting	.637	.683
7	Single class, common (not dual class capital structure)	.939	.939
	Overall Index: Gov7	.618	.717
	Mean values for components of *Audit*		
1	Audit committee composed solely of independent outsiders	.443	.741
2	Auditors were ratified at the most recent annual meeting	.637	.683
3	Consulting fees paid to auditors are less than audit fees paid to auditors	.648	.855
	Overall Index: Audit	.576	.760
	Mean values for components of *Board*		
1	Board is controlled by more than 50% independent outside directors	.354	.733
2	Size of board of directors is greater than 5 but not more than 15 members	.870	.880
3	The CEO and chairman duties are separated or a lead director is specified	.679	.620
4	Board members are elected annually	.406	.424
	Overall Index: Board	.577	.664

APPENDIX B: Variable Definitions

Variable	Acronym	Description & Sources of information
Measures of Disclosure and Transparency:		
Document Count	*Doc Count*	Number of documents released by the firm measured on an annual basis ending 14 days after the release of the firm's Earnings Per Share for the year (Australian Stock Exchange for Australia, NYSE Euronext for Belgium, France, Netherlands and Portugal, SEDAR for Canada, Nasdaq OMX for Denmark, Finland and Sweden, Athens Exchange for Greece, Hong Kong Exchange for Hong Kong, Irish Stock Exchange for Ireland, Borsa Italia for Italy, Timely Disclosure Network of Tokyo Stock Exchange for Japan, Korea exchange for Korea, OSLO Bors for Norway, Singapore Exchange for Singapore, Comison Nacional Del Mercado de Valores for Spain, Perfect Information for UK)
Log of Document Count	*Ldocs*	Natural logarithm (log) of Doc Count.
Release date	*ReleaseDate*	Earliest annual earnings release date meeting the criteria: > 15 days and < 180 days after balance sheet date used in the calculation of timeliness of price discovery and document count (Bloomberg, Compustat, Compustat Global, I/B/E/S, Reuters, Worldscope)
Timeliness of price discovery	*Timeliness*	The timeliness metric, measured as the average daily absolute difference between the log of the market-adjusted share price that day and the log of market-adjusted share price 14 trading days after the release of the firm's Earnings Per Share for the year. (CRSP, Datastream)
Timeliness deflated	*Timeliness Deflated*	The timeliness metric divided by one plus the absolute rate of return on the share over the 365 day period used to calculate the share's timeliness metric (CRSP, Datastream)
Measure of Corporate Governance: (For further details of measures see Appendix A)		
CG Index	*Gov7*	Aggregate Measure of Corporate Governance (Risk Metrics) between 0 and 1 where 1 represents better governance
Audit Index	*Audit*	Measure of Audit Quality (Risk Metrics) between 0 and 1 where 1 represents better governance
Board Index	*Board*	Measure of Board Quality (Risk Metrics) between 0 and 1 where 1 represents better governance
Firm Level Control Variables:		
Firm Size	*Size*	Natural log of the firm's market value of equity at time t in $US. (CRSP, Worldscope)

Good news	*Goodnews*	Dummy variable with a value of one if the market adjusted return over the 365 days ended 10 days after the release date is positive; zero otherwise.
Leverage	*Leverage*	Total $Debt_t$/Total Total $Assets_t$ [Compustat items: lt/at and Worldscope items: WS.TotalAssets/WS.TotalCommonEquity]. (Compustat, Worldscope)
Cross-Listing	*Crosslist*	Dummy variable with a value of one if firm is cross-listed on a USA stock exchange using a level II or level III American Depository Receipt; and zero otherwise. (Bank of New York; US stock exchanges, Securities and Exchange Commission)
Volatility	*Volatility*	Volatility calculated from daily log returns in the 90 days ending the day before we observe the first price for the timeliness metric. (CRSP, Datastream)
Closely Held	*Closeheld*	A measure of ownership concentration based on the fraction of shares which are closely held [Worldscope Item: WS.CloselyHeldSharesPct] (Worldscope)
Family ownership	*Family*	Percentage of shares held by family members in the firm (OSIRIS)
Institutional Block holder	*Instown*	Percentage of blockholding by institutional investors (OSIRIS)
Country Level Control Variable:		
Legal Origin	*Common*	A dummy variable coded 1 for countries with common law legal origins, and 0 otherwise.