

GOVERNANCE AND VOLUNTARY DISCLOSURE OF INTANGIBLES

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Abstract

This paper examines the effect of governance on the quality of firms' voluntary disclosure of intangibles. While disclosure of intangibles reduces information asymmetry, company-level managerial ownership and country-level institutional environment provide incentives that can affect the quality of disclosure. I use a comprehensive set of information about intangibles for disclosure, the aggregate percentage of ownership by directors for managerial ownership, and an index of legal institutions for institutional environments. Based on data from 430 East Asian firms, lower quality disclosure is evident for firms in stronger institutional environment regime. However, the quality of disclosure is not affected by managerial ownership or its joint-effect with institutional environment. The findings highlight the importance of voluntary disclosure about intangibles regardless of the influencing effect of governance mechanisms.

Keywords: Voluntary Disclosure, Intangibles, Institutional environment, Ownership, East Asia

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1. Introduction

This paper examines the role of governance in corporate voluntary disclosure practice associated with information about intangibles. Investors often use firms' voluntary disclosure of information about intangibles when financial statements are less informative about the market value of the company (Jones, 2007). In the context of intangibles, firms supplement traditional financial reports with non-financial information (Amir and Lev, 1996). While many studies have been conducted to understand the nature and extent of voluntarily disclosed information on intangibles (e.g., Guthrie and Petty, 2000), this paper fills the gap in the literature by considering the effect of governance on the quality of voluntary disclosure of intangibles by firms.

Analysing East Asian firms' governance and voluntary disclosure of intangibles is relevant for two important reasons. Firstly, firms in East Asia are often characterised by highly concentrated ownership (La Porta et al., 1998), with complicated pyramid structures and crossholdings. The involvement of management in corporate control, coupled with the lack of well-governed institutional investors in East Asia, provide managers and controlling owners with the incentive and ability for opportunistic behaviour. Secondly, East Asian companies are heavily influenced by managerial incentives that stem from the salient features of the East Asian institutional environments. Ball et al. (2003) characterised East

Asian firms to have higher political influence and lower anticipated cost of shareholder litigation and give lesser consideration to the importance of institutional shareholders and public debt. While the East Asian economies are known for the widespread influence of personal and political connections, the institutional features of countries in East Asia vary according to the effectiveness of the laws and the political economy in each country. The problematic characteristics of corporate ownership structure in East Asia, along with ineffective corporate governance, a weak legal structure and an underdeveloped market structure have the propensity to generate substantial agency problem.

This study considers the effect of governance mechanisms, both at firm and country-level, on corporate voluntary disclosure practice related to intangibles. Prior studies (e.g., García-Meca and Martínez, 2007) show that firms provide a variety of information relating to intangibles and these information are valued by investors (e.g., Guo et al., 2005, Xu et al., 2007). However, governance mechanisms create managerial incentive that may influence corporate disclosure strategies. While evidence from prior studies suggests that the variation in firms' ownership structure and other institutional features of the economy affect the quality of firms' financial reporting (Holthausen, 2009, Kothari, 2000, Ball, 2001), the effect of governance mechanisms on voluntary disclosure of intangibles has not been thoroughly researched. This is mainly because the

majority of prior studies in this area tend to focus on a single country, especially in the Western context. Moreover, prior studies have not considered the possibility that company-level and country-level governance jointly affect corporate voluntary disclosure practice involving intangibles.

The current study attempts to fill the gap in the existing literature by examining the association between the institutional environment, firms' managerial ownership, and their voluntary disclosures of intangibles. Firms' voluntary disclosure of intangibles is derived from an index of a comprehensive set of information about human resources, customers, information technology, processes, research and development, and strategy. The aggregate percentage of ownership of equity securities by directors represents firms' managerial ownership and an aggregate index of legal and political institutions measures country-level institutional environments. Sample for this study consists of 430 publicly listed firms from Hong Kong, Indonesia, South Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand.

Results show that the quality of firms' voluntary disclosure of intangibles is not affected by their managerial ownership. However, the quality of voluntary disclosure is lower for firms in stronger institutional environment as compared to firms in weaker institutional environment. Further, there is no evidence to support the joint-effect of managerial ownership and institutional environment on the quality of voluntary disclosure of intangibles. The results could be attributable to the fact that the importance of disclosure about intangibles in reducing information asymmetry in intangible-intensive firms prevails over the incentive from managerial ownership and institutional environment.

This study adds to the limited body of research on voluntary disclosure of intangibles in East Asia as previous studies have mainly focused on the Western economies. This study also provides evidence on corporate disclosure strategy related to intangibles from the perspective of jurisdictions with high information asymmetry. Further, I consider factors that are prevalent in explaining the variations in voluntary disclosure of intangibles by firms in East Asia by examining the effect of incentives that are sourced from managerial ownership and institutional environments. More importantly, this paper examines the joint-effect of company- and country-level governance on the voluntary disclosure of intangibles, a point of differentiation from previous related studies that have examined only one influencing factor. Findings of this study have practical implications for participants in stock markets. The evidence shows that the need to reduce information asymmetry concerning intangibles through voluntary disclosure of non-financial information on intangibles may be more important than the influencing effect of governance mechanisms.

This paper proceeds as follows. In Section 2, the literature that leads to the hypotheses development is discussed. Section 3 explains the research methodology. Results are presented in Section 4. Section 5 concludes.

2. Related Literature and Hypotheses Development

Companies undertake many investments on intangibles to generate future benefits (Webster, 1999). However, Wyatt and Abernethy (2008) argue that full capitalization of the investments is not feasible because they are highly uncertain. The IAS 38, which specifies the current accounting treatment on intangibles, is commonly perceived to be too conservative because the standard has many restrictive recognition criteria. While there are calls for drastic reform of the current reporting practice related to intangibles (Garcia-Ayuso, 2003, Lev, 2001), the characteristics of intangibles make it difficult for the recognition rules of intangibles to be modified without changing the overall accounting model and for the implementation of mandatory disclosure for intangibles (Skinner, 2008). As a result, many intangibles remain undisclosed.

Companies respond to the deficiencies in financial reporting by opting for voluntary disclosure practice. In the context of intangibles, voluntary disclosure strategy can be used to provide additional information about recognised intangibles and explanations of unrecognised intangibles. Prior studies (e.g., García-Meca and Martínez, 2007) have used a range of frameworks⁴³ to analyse voluntary reporting of intangibles. They show that firms provide a variety of information relating to intangibles including business collaborations, work-related competencies, strategic alliances, and human capital development. Many of the disclosed information refer to investment on intangibles which are not suitable for inclusion in financial statements. Further, capital market studies involving intangibles (e.g., Guo et al., 2005, Xu et al., 2007) show that investors value voluntary non-financial disclosure about intangibles. Findings on the capital market benefit of voluntary disclosure of intangibles are consistent with the agency theory argument that voluntary disclosure reduces investor uncertainty about the quality of the company and the expected returns from its securities. In view of that, voluntary disclosure of intangibles plays a role in alleviating information asymmetry surrounding intangibles.

Despite the evidence on the importance of voluntary disclosure of intangibles, disclosure strategies can vary between companies that have different managerial incentives. This paper considers

⁴³ Some of the examples are: guidelines for intellectual statement in Denmark in Mouritsen et al. (2003) and intellectual capital index in Guthrie and Petty (2000).

two sources of incentives: (1) corporate ownership structure, and (2) countries' institutional environment. Both governance mechanisms create incentives for managers to engage in activities that are either growth-enhancing or growth-degenerative for their companies. Corporate ownership structure and other institutional features of the economy influence the development of accounting standards and practices (Gray, 1988, Saudagaran and Diga, 2000, Craig and Diga, 1998), and, in turn, shape the quality of financial reporting (Holthausen, 2009, Kothari, 2000, Ball, 2001).

According to the proponents of agency theory, the structure of corporate ownership provides differential incentives that influence corporate reporting. From one perspective, greater managerial ownership leads to interest-alignment effect that positively affect company (Warfield et al., 1995). From another perspective, greater managerial ownership leads to entrenchment effect that adversely affect the company (Wiwattanakantang, 2001). In the context of firms in East Asia, there are views that the entrenchment effect prevails over the interest-alignment effect. Fan and Wong (2002) link ownership structure in East Asia to weak information quality while Ball et al. (2003) indicate that the institutional structures of East Asian countries create incentives for controlling owners and managers to compromise financial reporting quality.

Prior studies on the relation between firms' voluntary disclosure and managerial ownership show mixed findings. Firms have been found to have less frequent voluntary disclosure, such as management earnings forecasts (Nagar et al., 2003), as managerial ownership increases. Contrary to that, Arcay and Vázquez (2005) find that firms' voluntary disclosure is positively related to board ownership. In Leung and Horwitz (2004), voluntary segment disclosure by Hong Kong firms is shown to have a non-linear relation. Further, a few studies report an insignificant relationship between voluntary disclosure and managerial ownership (Kelton and Yang, 2008). The mixed findings in these studies could be related to the different types of voluntary disclosure practiced by firms.

Prior related studies have not examined the relation between firm ownership and voluntary non-financial disclosure related to intangibles. For intangible-intensive firms, the role of managerial ownership is intensified because managers have greater discretionary power as they are the decision makers in the firms. The benefits and the costs of information on intangibles are high, making it likely that greater managerial incentives are involved in the decision to voluntarily disclose information on intangibles. On the one hand, one would expect that the importance of voluntarily disclosing information of intangibles prevails over the incentives from managerial ownership because the disclosure can reduce information asymmetry that is high in

intangible-intensive firms. On the other hand, due to the high proprietary cost of information on intangibles, managerial ownership may lead to the withholding of information in intangible-intensive firms. However, the debate surrounding the influence of corporate managerial ownership on firms' voluntary disclosure of intangibles has not been sufficiently examined in the current academic conversation.

Prior related studies have also overlooked the East Asian context. The role of managerial ownership in the East Asian firms is different from those of the Western firms because of differences in countries' institutional features. Following the argument in Fan and Wong (2002), managerial ownership is associated with greater incentives for managerial entrenchment rather than alignment of interest with shareholders. As a result, the quality of voluntary disclosure of intangibles is expected to be lower for firms with greater managerial ownership. The hypothesis is as follows:

H₁ There is a negative association between firm-level managerial ownership and the quality of voluntary disclosure of intangibles.

While the first hypothesis relies on the role of managerial ownership as a governance mechanism, issues of governance that align the objectives of managers and shareholders can originate from the institutional features of an economy. La Porta et al. (1997) indicate that managers behave more opportunistically in an environment with weak shareholder protection, while a less corrupt government makes it difficult for corporate insiders and bureaucrats to steal from investors. Corporate governance practices, such as the protection of minority shareholders, differ and depend on whether the legal system is shareholder-based or stakeholder-based. Common law countries, which rely on the 'shareholder' governance model, has higher transparency level (Ball et al., 2000) because information asymmetry is resolved by public disclosure as compared to code law countries. In the context of East Asia, a region known for widespread influence of personal and political connections, the countries' institutional features vary according to the effectiveness of the laws and the political economy in each country.

Prior studies show that the influence of law is significant in explaining the variation in the quality of non-financial information worldwide. Generally, findings of prior studies suggest that disclosure intensity is greater for companies in common law countries (Jaggi and Low, 2000, Hope, 2003, Khanna et al., 2004). Using a sample of 34 countries, Francis et al. (2005) find that disclosures are higher for firms in countries with stronger investor protection but no significant results is found on the relation between firms' disclosure and the variable for a country's

financial system. The level of firms' disclosure of intangibles can be explained by a broad range of national, political, and economic systems (Williams, 1999, Archambault and Archambault, 2003), although these studies find contradicting results with regards to the effect of countries' legal systems, level of economic development and development of the equity market. In a similar vein, Bushman, Piotroski, and Smith (2004) show that governance transparency⁴⁴ is higher in countries with common law legal origin and high judicial efficiency, while financial transparency⁴⁵ is explained by political economy, and is higher in countries with a low state ownership of enterprises, a low state ownership of banks, and a low state expropriation of company wealth.

In sum, studies that use sample of firms from various countries have the ability to provide a comprehensive picture regarding corporate voluntary disclosure practice. The existing evidence generally shows that the variation in disclosure can be explained by country-level institutional features that act as a source of managerial incentives. With respect to the disclosure of intangibles, the role of the institutional environment is even more important as the property rights of intangibles are protected through the existence of law and the effectiveness of enforcement. Arguably, in countries with insecure property rights, there will be relatively less investment in intangibles, and less disclosure about investments on intangibles.

As East Asia is composed of countries with diversified institutional features⁴⁶, East Asian companies are exposed to different managerial incentives that are sourced from the idiosyncratic features of the countries. Based on the prior evidence suggesting that institutional factors differ across countries and that those differences lead to the variations in the nature and extent of disclosure, the current study extends the literature on the voluntary disclosure of intangibles by considering the effect of countries' institutional environments. The hypothesis is as follows:

H₂ There is a positive association between country-level institutional environment and the quality of voluntary disclosure of intangibles.

The above hypotheses examine the effect of either the managerial ownership or the legal environment on corporate voluntary disclosure of intangibles. Previous related studies have suggested that company-and country-level incentives interact to jointly affect the extent of firms' voluntary disclosure of intangibles. Webb et al. (2008) find that the interaction between globalization and the legal environment is significantly associated with firms' voluntary disclosures. Results indicate that the effect of company globalisation on voluntary disclosure is greater for firms residing in code law countries. While globalization creates a demand for voluntary disclosure in multinational firms that have greater information asymmetry, the role of globalization is greater for firms operating in weak legal and judicial institutional framework at home than for firms based in countries with strong legal environments. Contrary to that, Francis et al. (2005) find that the effect of a company's external financing needs on voluntary disclosure of intangibles is not conditional on the legal environment related to investor protection rights and financial structure. They indicate that firm-level voluntary disclosure incentives are themselves an important factor globally and operate independently of country-specific factors.

Many previous related studies (e.g., García-Meca and Martínez, 2007) on voluntary disclosure have also not considered the interaction effect of company-level and country-level incentives in reporting quality, while a few studies that do consider the joint effects provide mixed evidence. Nevertheless, Webb et al. (2008) and Francis et al. (2005) suggest the idea that the interaction between company-level and country-level factors should be considered in analysing the variation in firms' voluntary disclosure. Following that, the interaction between firms' managerial ownership and the countries' legal environment is expected to be significantly associated with voluntary disclosures of intangibles. The hypothesis is as follows:

H₃ Firm-level managerial ownership and country-level institutional environment jointly affect the quality of voluntary disclosure of intangibles.

3. Research Methodology

The sample for this study consists of 430 firms from East Asian countries, namely Hong Kong, Indonesia, South Korea, Malaysia, the Philippines, Singapore, Taiwan and Thailand. I randomly select firms that have the following information for the year 2007: (i) data in Compustat, (ii) intangible assets or research and development expenditure, (iii) English language version annual report, and (iv) information on managerial ownership in the annual report or OSIRIS. Data have been screened and filtered to remove outliers and other data distortions. The sample size of

⁴⁴Information that can be used to hold officers and directors accountable.

⁴⁵Timeliness, intensity, interpretation and dissemination of financial disclosures.

⁴⁶ For example, Hong Kong, Malaysia, Singapore and Thailand are common-law countries, while Indonesia, the Philippines, South Korea and Taiwan are code law countries. Despite the typical classification based on legal origin, Leuz et al. (2003) and Ball et al. (2003) highlight the idiosyncratic features of the institutional environment in East Asian markets.

430 is considered reasonable because of the time consuming nature of the data collection process. Nevertheless, the sample size compares favourably with cross-countries studies using hand-collected data from annual reports (e.g., Webb et al., 2008, Cahan et

al., 2005), including studies that use Asian samples (e.g., Williams, 1999).

The following model is used to test the hypotheses:

$$DISC_j = \alpha_0 + \alpha_1 OWN_j + \alpha_2 INS_j + \alpha_3 [OWN \times INS]_j + \alpha_4 PROFIT_j + \alpha_5 LEV_j + \alpha_6 GROWTH_j + \alpha_7 TOBINSQ_j + \alpha_8 SIZE_j + \sum_{i=1}^9 \gamma_i IND_j + \varepsilon_j(1)$$

Where:

DISC is the disclosure score measuring the extent of voluntary information about intangibles,

OWN is a dichotomous variable of one (1) if the aggregate percentage of equity securities by executive and non-executive directors is more than the sample median, and zero (0) otherwise,

INS is a dichotomous variable of one (1) if a firm resides in a country with a strong institutional environment, and zero (0) otherwise,

PROFIT is the net profit margin,

LEV is the percentage of total debt to total assets,

GROWTH is the growth in sales,

TOBINSQ is the market capitalization divided by book value of total assets,

SIZE is the total sales in its log term, and

IND is a dichotomous value of one (1) if the firm belongs to that industry, and zero (0) otherwise.

The test variables in the regression model are OWN, INS and the interaction between those two (OWNxINS), which are explained further below. The model in equation (1) tests the association of (i) ownership (OWN) with voluntary disclosure of intangibles (H_1) and (ii) institutional environment (INS) with voluntary disclosure of intangibles (H_2) as a separate and independent effect. A significant negative coefficient is expected for α_2 , while α_3 is expected to be positive and significant.

OWNxINS, which tests for H_3 , proxies for joint-effect of managerial ownership and institutional environment on voluntary disclosure of intangibles. The coefficient for the interaction variable is estimated to be significant to indicate that the quality of voluntary disclosure of intangibles is determined by both firm-level and country-level governance.

Dependent Variable - Voluntary Disclosure of Intangibles (DISC)

DISC is derived from the content analysis of annual reports based on a six-category index that closely follows Bukh et al. (2005). The categories in the index are: (1) Human Resource (HR), which covers workforce-based assets, (2) Customers, which covers customer-based assets and market-based assets, (3) Information Technology (IT), which represents intangibles related to information technology initiatives and systems that increase company efficiency and productivity, (4) Processes, which refers to intangibles related to programmes that increase efficiency and productivity, (5) R&D, which incorporates information on the programmes and progress of R&D, innovation and, intellectual property, and (6) Strategy, which includes the intangible benefits from the strategic execution of companies.

To capture voluntary information about intangibles, sections which are subject to regulatory requirements, such as the corporate governance report, are excluded. The disclosed information is scored using a 0-3 scoring system, based on the quality of information. A score of 0 is given for non-disclosure, 1 if the information is disclosed but the level of information is minimal, 2 if the information is disclosed and the level of information is average and 3, if the information is disclosed and the level of information is high.

Independent Variables

Based on prior studies (Morck et al., 1988, Luo et al., 2006, Oei et al., 2008), managerial ownership (OWN) is developed from the aggregate percentage of ownership of equity securities by executive and non-executive directors. The importance of director shareholdings is highlighted by Bhagat and Bolton (2008) who state that "the efforts to improve corporate governance should focus on stock ownership of board members". The use of director shareholdings is warranted by the availability of data from the annual reports and the OSIRIS database. Besides, director shareholding proxies for the level of managerial ownership and plays an influential role in the governance of East Asian firms whereby managers are often the controlling shareholders (Lemmon and Lins, 2003, Wiwattanakantang, 2001, Lins, 2003). For the analysis, firms are given a score of one (1) if their managerial ownership is greater than or equal to the sample median, and a score of zero (0) otherwise.

Institutional environment (INS) is derived from an index constructed by Berkowitz et al. (2003). The index measures the judiciary's effectiveness, the rule of law, the absence of corruption, the low risk of contract repudiation and the low risk of government

expropriation in a particular country. The index is relevant to the current study that focuses on intangibles as (a) the protection of property rights in intangible assets presents difficulties, and (b) these problems may differ across the countries that are included in the analysis. The score for the index represents the effectiveness of the institutions that enforce the law in a country, with higher scores corresponding to a better legal and political environment. To incorporate the variable in the model, a score of one (1) is given to firms classified in the INS^{High} group and a score of zero (0) is given to firms classified in the INS^{Low} group.

Firm-specific variables were included in the regression model to control for factors that have been found to be associated with firms' voluntary disclosures. Net profit margin proxies for profitability (PROFIT), percentage of total debt to total assets proxies for leverage (LEV), growth in sales proxies for growth (GROWTH), Tobin's Q proxies for firm valuation (TOBINSQ), and total assets proxies for size (SIZE). These variables are commonly used as control variables in prior studies on voluntary disclosure (e.g., Francis et al., 2005). To control for the systematic industry effect on voluntary

disclosure, variables for industry (IND) are included in the model.

4. Findings

The composition of the sample (untabulated) based on countries shows that the highest representation is by Malaysian firms (17.91 percent), while the lowest is Taiwanese firms (8.84 percent). The most common industries are industrial with a composition of 24.87 percent of the sample. Firms from the energy, health care, financial services, telecommunication services and utilities industries, each make up less than 5 percent of the overall sample.

The descriptive statistics in Table 1 are divided into three panels – Panel A provides the descriptive statistics of all 430 firms in the sample, Panel B lists those categorised under the INS^{High} sample and Panel C lists those under the INS^{Low} sample. The INS^{High} sample, or those firms residing in high quality institutional environment, consists of 237 firms in Hong Kong, Singapore, Malaysia, and Taiwan. The INS^{Low} sample consists of 193 firms in South Korea, the Philippines, Thailand, and Indonesia, the countries categorised in low quality institutional environment.

Table 1. Descriptive Statistics

Panel A: Full Sample (n = 430)						
Variable	Mean	Median	Percentiles			Std. Deviation
			25%	50%	75%	
DISC	33.058	30.500	17.000	30.500	46.250	19.468
PROFIT	0.104	0.060	0.024	0.060	0.122	0.244
LEV	0.145	0.105	0.033	0.105	0.231	0.138
GROWTH	0.303	0.161	0.038	0.161	0.318	0.798
TOBINSQ	1.795	1.290	0.830	1.290	2.272	1.490
SIZE	2.593	2.444	1.979	2.444	3.229	0.799
OWN	8.310	0.933	0.013	0.933	10.527	14.401

Panel B: INS^{High} (n = 237)						
Variable	Mean	Median	Percentiles			Std. Deviation
			25%	50%	75%	
DISC	28.941	25.000	14.000	25.000	41.500	18.589
PROFIT	0.119	0.060	0.019	0.060	0.124	0.301
LEV	0.130	0.088	0.027	0.088	0.187	0.131
GROWTH	0.351	0.183	0.052	0.183	0.320	0.966
TOBINSQ	1.677	1.236	0.790	1.236	2.081	1.440
SIZE	2.526	2.379	1.968	2.379	3.086	0.767
OWN	9.300	1.382	0.095	1.382	12.449	14.764

Panel C: INS^{Low} (n = 193)						
Variable	Mean	Median	Percentiles			Std. Deviation
			25%	50%	75%	
DISC	38.114	37.000	22.000	37.000	53.500	19.377
PROFIT	0.084**	0.060	0.030	0.060	0.122	0.144
LEV	0.164*	0.130	0.040	0.130	0.261	0.144
GROWTH	0.244	0.153	0.033	0.153	0.296	0.519
TOBINSQ	1.940	1.409	0.888	1.409	2.616	1.539
SIZE	2.677	2.661	2.000	2.661	3.404	0.831
OWN	7.093	0.469	0.000	0.469	6.726	13.883

** Difference between the high and low institutional samples is significant at the 1 percent level using t-test

* Difference between the high and low institutional samples is significant at the 5 percent level using t-test

In Table 1, the average disclosure score for the full sample is 33, with a median score of 31. The firms' average (and median) profit, leverage, growth and Tobin's Q are 0.10 (0.06), 0.15 (0.11), 0.30 (0.61) and 1.80 (1.30), respectively. The average size of firms in the sample is 2.68 while the median is 2.66. The average value of firms' managerial ownership is 7.09 with a median value of 0.47. Except for TOBINSQ, the percentiles data indicate a substantial cross-sectional variation in all variables.

Comparing firms in the INS^{High} and the INS^{Low} subsamples show some noticeable differences of the values. Parametric analysis was conducted to compare the mean values of the two subsamples. Highly significant differences (at the 1 percent level) can be seen for profit, with firms in the INS^{HIGH} subsample having higher profit than firms in the INS^{LOW} subsample. The average values of firms' leverage is also significantly different (at the 5 percent level) with firms in the INS^{HIGH} subsample having lower leverage than firms in the INS^{LOW} subsample.

Table 2. Correlation Analysis

	DISC	PROFIT	LEV	GROWTH	TOBINSQ	SIZE	OWN	INS
DISC		-0.027	0.054	-0.049	0.232**	0.499**	-0.182**	-0.235**
PROFIT	0.053		-0.057	0.180**	0.058	0.140**	-0.129**	0.072
LEV	0.079	0.031		-0.026	0.072	0.234**	-0.116*	-0.123*
GROWTH	-0.046	0.068	0.054		0.005	-0.022	0.015	0.066
TOBINSQ	0.258**	0.214**	0.059	0.029		0.135**	-0.077	-0.088
SIZE	0.501**	0.176**	0.263**	-0.045	0.202**		-0.275**	-0.094
OWN	-0.176**	-0.115*	-0.115*	0.141**	-0.071	-0.282**		0.143**
INS	-0.238**	-0.024	-0.120*	0.049	-0.100*	-0.095*	0.143**	

Pearson correlations are in the upper diagonal, while Spearman correlations are in the lower diagonal. Two-tailed p-values are given in parentheses. * and ** denote significance at the 5% and 1% level, respectively.

Table 2 reports the correlation coefficients for the dependent and independent variables of the regression model. Correlations between DISC and SIZE are quite substantial, with a value of 0.499 in the Pearson correlation and 0.501 in the Spearman correlation. DISC is also significantly associated with TOBINSQ. The correlations of 0.232 in the Pearson correlation and 0.258 in the Spearman correlation indicate that there is a moderate positive association between voluntary disclosure of intangibles and

Tobin's Q. The correlations between DISC, OWN and INS are negative, with a value ranging from -0.176 to -0.238 in the Pearson correlation, and -0.182 to -0.235 in the Spearman correlation. Table 2 also reports the correlations between independent variables, which can be considered to be small. Overall, the correlation results between the independent variables do not suggest any concern for multicollinearity.

Table 3. Regression Analysis

	Predicted Sign	Model 1		Model 2	
		Coefficient	t-statistic	Coefficient	t-statistic
Intercept		2.601	0.708	2.819	0.761
PROFIT	+	-6.458	-1.943*	-6.307	-1.887*
LEV	+	-11.269	-1.856*	-11.279	-1.856*
GROWTH	+	-0.681	-0.685	-0.682	-0.685
TOBINSQ	+	1.797	3.373***	1.779	3.329***
SIZE	+	12.431	11.752***	12.474	11.739***
OWN	-	-1.909	-1.153	-2.721	-1.149
INS	+	-6.550	-3.998***	-7.308	-3.210***
OWNxINS	+/-			1.537	0.480
Industry fixed effects		Included		Included	
Adjusted R^2		0.333		0.332	
F-Statistic		14.389***		13.531***	
n		430		430	

*, ** and *** denote significance at the 10%, 5% and 1% level, respectively.

Table 3 reports the results of the regression analysis according to the specification in equation 1.

In Model 1, regression analysis tests the independent effect of managerial ownership (H_1) and institutional

environment (H_2) on firms' voluntary disclosure of intangibles. In Model 2, regression analysis tests the interaction effect of OWN and INS on firms' voluntary disclosure of intangibles (H_3). Both models have an R^2 of 33 percent. The F-statistics for Model 1 and Model 2 are 14.39 and 13.53, respectively. For the control variables, Table 3 shows that the coefficients for PROFIT and LEV are significant at the 10 percent level, while the coefficients for TOBINSQ and SIZE are significant at the 1 percent level. PROFIT and LEV are negatively associated with DISC, and positive association is reported between DISC and TOBINSQ and DISC and SIZE. Except for PROFIT, the results of other control variables are consistent with prior studies on voluntary disclosure (e.g., Francis et al., 2005).

In Model 1, the variables of interest are managerial ownership (OWN) and institutional environment (INS). Findings reveal that the coefficient for managerial ownership OWN is not statistically significant. Hence, there is no evidence to support that firms' managerial ownership has a negative effect on voluntary disclosure of intangibles, as predicted by H_1 . The coefficient for institutional environment (INS) is statistically significant at the 1 percent level. While H_2 predicts that institutional environment positively affects firms' voluntary disclosure of intangibles, the results in Table 3 show otherwise. The negative coefficient of INS suggests that the association between country-level institutional environment and firms' voluntary disclosure of intangibles is negative. After controlling for firms' characteristics, including the level of managerial ownership, the results indicate that voluntary disclosure of intangibles is lower for firms in stronger institutional environment compared to firms in weaker environment.

In Model 2, the results for managerial ownership (OWN) and institutional environment (INS) remain the same as in Model 1. The coefficient for managerial ownership is not statistically significant and the coefficient for institutional environment is significant and negative. The main variable of interest is the interaction between managerial ownership and institutional environment ($OWN \times INS$), which is used to test H_3 . The coefficient for $OWN \times INS$ is not statistically significant, which means that H_3 is not supported. Statistical results indicate that there is no evidence to support that managerial ownership and country-level institutional environment jointly affect firms' voluntary disclosure of intangibles.

The above findings warrant explanations. First, the results show that OWN, which proxies for managerial ownership, is not associated with voluntary disclosure of intangibles. The insignificant finding could be due to the inconclusive results from prior literature regarding the relationship between managerial ownership and disclosure. Secondly, contrary to the prediction in the second hypothesis,

institutional environment (INS) is negatively associated with voluntary disclosure of intangibles. The results suggest a possibility that, in weak institutional environments, firms have more incentive to provide credible and informative disclosures. This is because information on intangibles is highly valued by investors, and failure to disclose such information would lead the investors would view the companies skeptically. Thirdly, there is no evidence that the disclosure effects are conditional on the interaction between managerial ownership and country-level institutional environment. In a way or so, the insignificant results are consistent with the findings in Francis et al. (2005). Finally, it is also possible that these idiosyncratic results relate to the sample of this study and the voluntary disclosure that I focus on. As the sample consists of intangible-intensive firms, the importance of disclosure in reducing information asymmetry could prevail over the incentive from managerial ownership and institutional environment.

I performed additional analyses to test the sensitivity of the results in Table 3. First, the dependent variable (DISC) is replaced with alternative measures. Following prior studies (e.g., Jones, 2007, Webb et al., 2008), I use the following measures: a) DISC-ITEM which is the total score of items rated on a binary scale, b) DISC-GROUP which is a dichotomous variable with a value of one for total disclosure score equals to, or greater than, the sample median and zero otherwise, c) DISC-RANK which is the ranking of the companies according to their disclosure scores and d) DISC-COUNTRYMEAN which is the deviation of a company's disclosure score from the mean disclosure scores of their country. The statistical evidence (untabulated) is similar to the evidence reported in the Table 3. Thus, the main findings are robust to the different scoring systems that can be used to measure disclosure scores.

Second, following Webb et al. (2008), I have included an additional control variable for 56 firms that are also listed in the US stock exchange (CROSS-LISTED). CROSS-LISTED takes a value of one for cross-listed firms, and zero otherwise. Prior studies provide evidence that being cross-listed in the US is positively associated with disclosure (Khanna et al., 2004). Arguably, foreign firms which are cross-listed in the USA have greater pressure to provide higher quality financial reporting as they are subject to the more stringent U.S. financial reporting regime and stronger enforcement power of the U.S. The findings (untabulated) are consistent with the main results in Table 3. The variable CROSS-LISTED is not statistically significant, while the coefficients of other variables are of the same significance level and sign as those reported in the main analysis. While there is a possibility that firms cross-listed in the US may have different incentives for financial reporting, the results imply that the main findings are robust to the effect of cross-listed firms.

Thirdly, the effect of having 110 high-technology firms in the sample is considered. Although I control for an industry effect, there is a possibility that there are influences from firms in high-technology industries that have not been captured by the dichotomous variable for industry. Firms in the high-technology industries tend to have higher level of intangibles and are more likely to voluntarily disclose information on intangibles (Gelb, 2002). Regression analysis is undertaken using the classification⁴⁷ of high-technology firms from Kile and Phillips (2009). Based on the 6 digit GICS codes, firms are segregated into two groups, where a value of one is given to firms in high-technology industries and zero, if otherwise. Equation (1) is adjusted by removing the dummy variables for industries and adding HIGHTECH, the variable that represent firms in high-technology industries. Results (untabulated) show that HIGHTECH is positive and significant, which means that firms in high technology industries provide greater disclosure of intangibles than firms in other industries. Further, the coefficients of other variables are consistent with those reported in the main analysis. The results suggest that the main findings are robust to the influence of high-technology firms.

Overall, results reveal that there is no evidence to support the hypothesis on the joint-effect of managerial ownership and institutional environment on firms' voluntary non-financial disclosure of intangibles. Contrary to what is expected, the quality of voluntary disclosure of intangibles is not jointly determined by the company and country-level governance. However, firms residing in stronger institutional environment provide lesser quality disclosure compared to firms in weaker institutional environment. Results in this study are robust to the different ways the disclosure is scored, and after controlling for firms cross-listed in the US and firms in high technology industries.

5.0 Conclusion

This study looks at the joint-effect of the variations in firm-level managerial ownership and country-level institutional environment in analysing the quality of voluntary disclosure of intangibles. The role of managerial ownership of firms in East Asia, added together with the legal and political institutions across the countries are important in the analysis involving intangibles since the value of many intangibles is conditional on the quality of governance, such as the laws on property rights. While evidence from prior

related studies shows the effect of ownership structure and/or institutional environment on the quality of financial reporting (Holthausen, 2009, Kothari, 2000, Ball, 2001), focus on voluntary disclosure of intangibles especially of firms countries in the East Asian market is limited. In the light of the gaps in prior studies, this study has tested whether firms' voluntary disclosure of intangibles is jointly influenced by managerial ownership and the quality of the institutional environment of their host country.

This study has shown that the quality of firms' voluntary disclosure of intangibles is not conditional on the level of managerial ownership, but is rather explained by country-level institutional environment. More specifically, lower quality voluntarily disclosed information on intangibles is shown by firms in stronger institutional environment compared to their counterparts in weaker institutional environment. This study finds no evidence on the joint effect of the two governance mechanisms on firms' voluntary disclosure of intangibles. The results are robust because they are consistent even when I use different disclosure scores and control for cross-listed US firms and high-tech firms. The findings suggest that, despite the incentives of managerial ownership and the institutional environment, firms' still view voluntary disclosure of intangibles as an important mechanism in providing investors with information about corporate investment in intangibles.

This study offers several avenues for future research. First, measurement of the variables can be improved in several ways. Future research can focus on other sources of corporate disclosure of intangibles and other measures of ownership such as institutional ownership. This study can be extended by differentiating between shares held by executive and non-executive directors because there are different managerial incentives involved with those two categories of directorship. Second, there is an opportunity to analyse firms' voluntary disclosure of intangibles in other markets to utilise the institutional features of the markets. Third, research on voluntary disclosure of intangibles would benefit more industry-specific factors that focus on specific intangibles that are important to the particular industries.

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⁴⁷ Prior studies have used various terms with different classification methods to identify industries with high intangibles. Examples of the terms being used are: intangible-intensive industries (Collins et al., 1997), high-technology industries (Barron et al., 2002) and 'new' vs 'old' economy (Abdolmohammadi, 2005).

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