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Controlling owner and transparency: Information transparency and disclosure rankings system

Hao-Feng Xu¹ and Mei-Feng Lin^{2*}

¹Business School, Sun Yat-sen University, P. R. China.

²Department of Accounting, National Changhua University of Education, No. 2, Shi-Da Road, Changhua City, R. O. C.

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In response to the public's growing concern about low transparency and disclosure quality, the Taiwan Securities and Futures Institute (SFI) currently launched "Information Transparency and Disclosure Rankings System" (ITDRS). Based on the sample of ITDRS, this study explores whether the likelihood of firms being selected as transparent companies by SFI varies with the ownership structure, measured by the degree of the divergence between the ultimate owner's control and the equity ownership level. We also examine whether market gives greater market premium for firms ranked as more transparency by SFI. As predicted, we find that firms with more control divergence, family-controlled companies or firms with greater percentage of supervisors affiliated with controlling owner are more likely to be selected as opaque companies. We also find that transparent companies are more highly valued than opaque companies. The results remain unchanged after controlling for self-selection bias by using treatment effect model.

Key words: Information transparency, ultimate control ownership structure, information transparency and disclosure rankings system, market premium.

INTRODUCTION

The low level of information transparency and disclosure quality that is typical of public corporations in the East Asian region leads to high financing costs and thus poses a potential threat to the competitiveness of East Asian firms. One of the most frequently cited reasons for the low level of quality is poor corporate governance structures in this region (Fan and Wong, 2002; Claessens and Fan, 2003). In response to the public's concern about the lower disclosure quality, the Securities and Futures Institute hereafter (SFI) conduct "Information Transparency and Disclosure Rankings System" (ITDRS) to evaluate the level of transparency for all listed companies in Taiwan since 2003. The primary objective of this paper is to examine whether agency problems, as measured by divergence between voting rights and cash flow rights of ultimate owner, adversely affect firm's disclosure rankings, measures by ITDRS rankings. Second, we further examine whether market give greater

premium for firms with higher disclosure rankings.

Unlike diffusely owned corporations in the U.S. and the U.K., listed corporations in East Asia are typically majority owned, and controlled by families. La Porta et al. (1999), Claessens et al. (2000) and Faccio and Lang (2002) found that the controlling shareholders of publicly traded companies in most countries typically have voting (control) rights over firms significantly in excess of their cash flow rights through a pyramidal control structure and cross-stockholdings.

The agency problems, for Taiwanese listed firms, arise from the conflict of interest between minority shareholders and the controlling owner, who generally has control rights in excess of their cash flow rights via pyramid and cross-shareholdings. The divergence between control rights and cash flow rights provides controlling owners with the ability and incentives to derive private control benefits at the expense of minority shareholders. Tight control creates an entrenchment problem that allows the controlling owners' self-interested behaviors to go unchallenged internally by the boards of directors or externally by takeover markets. Controlling owners and managers have incentives to conceal their private control

*Corresponding author. E-mail: linmf@cc.ncue.edu.tw. Tel: 886-4-723-2105/7519.

benefits from outsiders because, if these benefits are detected, outsiders will likely take disciplinary action (Shleifer and Vishny, 1997; Leuz et al., 2003).

To enhance the information transparency and disclosure quality for all listed companies in Taiwan, SFI has been launching ITDRS since 2003. The information transparency and disclosure rankings have been held annually to evaluate information transparency and disclosure of all listed firms. The evaluation is based primarily on analysis of data submitted to the Market Observation Post System (MOPS). Firms are ranked by five grades, including A+, A, B, C and C-, to strengthen their attention to improvements in information disclosure.

Firms tend to conceal their private control benefits in the presence of more serious agency costs by affecting the firm's disclosure policy and financial reporting. For example, the desire to avoid external monitoring and loss of reputation induces them to mask their private control benefits by manipulating reporting earnings (Leuz et al., 2003). Haw et al. (2004) also find that earnings management increases as the control divergence of the controlling owner increases.

In with firms in the U.S. and U.K., separation of management from ownership control is rare in Taiwan, and the managers of about 60% of firms that are not widely held is related to the family of the controlling shareholder. In Korea, Singapore, and Taiwan, large family-controlled firms also display a significant wedge between ownership and control (Claessens et al., 2000). The results suggest that family ownership results in families exerting substantial control over board decisions and agendas in stockholders' meetings. Thus, in an attempt to reduce other investors' perception of depriving private control benefits, controlling owners have an incentive to take actions to avoid meeting the requirements of disclosing shareholdings.

Like in Germany and Japan, board of firms in Taiwan is composed of a board of directors and a board of supervisors. Directors are responsible for engaging in firm affairs, while supervisors take the responsibility for independent monitoring firm operations. In addition, management and the board of directors are required to submit reports on the request of the supervisors. More importantly, when management or the directors violate the law or hurt firm value, supervisors are required to sue the directors or managers (Ting and Liao, 2010); as a result, when supervisors affiliate with controlling owners, they are less likely to exercise their individual rights, thereby reducing their incentive to enhance disclosure levels.

The second question we address in this paper is to examine whether market gives greater market premium for firms ranked as more transparency by SFI. Prior studies find that firms with higher transparency and disclosure levels tend to have higher market valuation (Verrechia, 1983; Fan and Wong, 2002; Doidge et al., 2004; Aksu and Kosedag, 2005). For example, Doidge et

al. (2004) find that due to more stringent law and disclosure requirement in the U.S., firms that cross-list their shares in the U.S. have higher valuations than other firms that do not cross-list. The study predicts that market premium increases with ITDRS rankings.

The study find that firm' disclosure levels or ITDRS rankings are lower when divergence between voting rights and cash flow rights of ultimate owner increase. Second, the study also finds that the association is stronger for family-controlled companies or when supervisors are affiliated with ultimate owners. Finally, the study finds that market give greater premium for firms with higher disclosure levels (that is, ITDRS rankings).

This paper contributes to the literature in several ways. First, the paper has important policy implication for regulator, standard setters, investors, and managers. For example, the findings are consistent with SFI' allegation that ITDRS can provide useful information to enable investors to better protect their interest through use of ranking results as an additional decision-making tool. Second, extant literature on association between agency problems and disclosure levels focus mainly on the listed firms in mature market such as U.S. and U.K. The agency problems for Taiwanese listed firms arise from the conflict of interest between minority shareholders and the controlling owner, as opposed to those arising from conflict between shareholders and managers. Therefore, extant findings cannot be generalized to firms in Taiwan or other emerging markets. The study finds that control divergence is a critical determinant of a firm's disclosure level in Taiwan.

INSTITUTIONAL BACKGROUND: ITDRS

The Securities and Futures Institute in Taiwan (hereafter SFI), entrusted by the Taiwan Stock Exchange Corporation (TSEC) and the GreTai Securities Market (GTSM), has been conducting ITDRS to access the transparency levels for all listed companies in Taiwan since 2003. The main goals of ITDRS include: 1) to promote corporate transparency by developing evaluation criteria which can not only well examine local disclosure practices but also comply with international standards; 2) to assist companies in reducing cost of capital as disclosure level increases; 3) to enable investors to better protect their interest through the use of ranking results as an additional decision-making tool; and 4) to help regulators better monitor the market. Firms are ranked as either one of Grade A+, A, B, C, and C-. Full ranking results are available at <http://www.sfi.org.tw>.

All listed companies were evaluated by ITDRS, except for some companies with inadequate data or regulatory enquires. The ITDRS gauged the level of corporate transparency by searching annual report, regulatory filing via internet, and company web sites. In order to access

the transparency and disclosure practices of listed companies, ITDRS identified 103 disclosure items as evaluation criteria grouped into the following five categories: 1) compliance with the mandatory disclosures, 2) timeliness of reporting, 3) disclosure of annual report, 4) disclosure of financial forecast, and 5) corporate website disclosure.

The screening process includes two stages. First, all information provided was preliminarily screened by the SFI in-house ranking team based on the existence of each disclosure item. All companies were entitled to check the preliminary result via internet, then directly respond to the SFI regarding ambiguous issues in two weeks. Secondly, upon receiving the different opinions (in papers) expressed by companies, the ranking committee accesses the presentation of information and decides the final list of the more transparent companies. In this paper, we use the ITDRS ranking as a proxy for information transparency and disclosure quality.

Hypotheses

Listed firms in East Asia, including Taiwan, tend to have low levels of transparency and disclosure quality. One of the often cited reasons is poorer corporate governance structures in this region (Fan and Wong, 2002; Claessens and Fan, 2003). In contrast with diffused owned firms in the United States, publicly listed firms in Taiwan are typically majority owned and controlled by families. Controlling owners exercise control power in excess of their cash flow rights via stock pyramids and cross-ownership structures. As a result, the agency problems arise from conflicts of interest between and controlling owners and minority. The controlling owners have nearly full control over managers and possess control power in excess of their cash flow rights. Since a smaller fraction of the firm's cash flow rights relative to voting rights fails to align controlling owner incentive with those of minority shareholders, controlling owners thus possess incentives and the ability to extract private control benefits at the expense of minority shareholders.

Extracting private control benefits, if detected, is likely to invite external intervention by minority shareholders, analysts, stock exchanges, or regulators (Haw et al., 2004). The desire to avoid external monitoring and loss of reputation induces controlling owners to conceal their private control benefits by managing financial reporting (Fan and Wong, 2002; Leuz et al., 2003; Haw et al., 2004). For instance, Haw et al. (2004) also document that earnings management increases with the control divergence of the controlling shareholders.

In addition to a higher concentration of ownership, one intriguing feature of the corporate governance system in East Asia, including Taiwan, is family-controlled business groups (Claessens et al., 2000). Family groups control 78% of publicly listed firms on the Taiwan Stock

Exchange. In 57.6% of family-controlled firms, the largest family holds more than half of the board seats (Ko et al., 2001). The results suggest that family ownership results in families exerting substantial control over board decisions and agendas in stockholders' meetings. Thus, in an attempt to reduce other investors' perception of depriving private control benefits, controlling owners have an incentive to take actions to avoid meeting the requirements of disclosing shareholdings.

The second approach adopted typically in leveraging control rights is using cross-shareholding from listed companies in the same family-controlled group. In addition, the ultimate owner's control is typically also achieved via stock pyramid. These complicated arrangements often enable the ultimate owner to command a given level of control (voting rights) while committing a less-than-equivalent ownership investment (cash flow rights), and allow companies to conceal the real identities of owners and not disclose to their shareholdings. These arguments lead to the following two hypotheses:

H_{1a}: Firms' disclosure levels are lower when divergence of voting rights and cash flow rights of ultimate owners increases.

H_{1b}: Firms' disclosure levels are relatively lower for family-control firms.

Compared to the U.S. and U.K, boards of directors are generally dominated by controlling owners in Taiwan. Prior studies (Yeh et al., 2001) document that controlling shareholders of Taiwanese firms are more likely to insert family members on boards when their voting rights substantially exceed cash flow rights of the firm and thus boards of Taiwan firms are populated with insiders. They also find, however, that as controlling shareholders' cash flow rights increase, the likelihood of family members on board decreases. Consequently, board monitoring in Taiwan is less effective when controlling shareholders' voting rights are more detached from their cash flow rights. According to this argument, we establish the following hypothesis:

H₂: Firms' disclosure levels are relatively lower when supervisors are affiliated with ultimate owners.

Poor accounting information and its associated high capital cost pose a serious threat to the competitiveness of East Asian firms (Fan and Wong, 2002). Fan and Wong (2002) reveals that controlling owners find it expedient to mask their private perquisites from outsiders in order to avoid disciplinary action and potential loss of firm market value (Shleifer and Vishny, 1997; Leuz et al., 2003).

Higher informational advantage increases investor awareness and trust which will reduce the uncertainty of the returns to the capital suppliers, in turn, reducing the firm's cost of capital and increasing its value (Berglof and

Pajuste, 2005). Voluntary disclosure reduces information asymmetries among informed and uninformed investors (Kim and Verrecchia, 1994). As a result, for firms with high disclosure levels, investors can be relatively confident that any stock transactions occur at a "fair price," thereby increasing liquidity in the firm's stock (Healy and Palepu, 2001). Doidge et al. (2004) indicate that firms that cross-list their shares in the U.S. have higher market premium than other firms that do not cross-list. The primary reason is that firms' that cross-list their shares in the U.S. tend to higher disclosure levels, which reduce their consumption of private benefits from control.

Finally, managers can reduce their cost of capital by reducing information risk through increased voluntary disclosure. Trueman (1986) argues that talented managers have stronger incentives to issue voluntary earnings forecasts to reveal their type. A firm's market value is a function of investors' perceptions of its managers' ability to anticipate and respond to future changes in the firm's economic environment. These arguments lead to the final hypothesis:

H₃: Firm value is higher firms with more transparent companies than firms with less transparent companies.

RESEARCH DESIGN

Sample

As suggested by Alam (2011) that the samples are composed of all listed firms that are subject to evaluation of ITDRS during 2005 through 2009, information transparency and disclosure ranking is retrieved from ITDRS website. All data on ownership structure of controlling shareholders are obtained from Taiwan Economic Journal (TEJ). Financial statement data and other corporate ownership structure are also collected from TEJ database.

The sample must meet the following requirement. First, we exclude firm-year observations in the financial institutions and regulated industries because of their dissimilar nature to other industries. The study also deletes firm-year observations due to insufficient financial data. The selection procedure yields 4,859 firm-year observations.

The model and variable

The empirical model

To test for the first two hypotheses that relative to others, firms with more control divergence or firms with greater percentage of supervisors affiliated with controlling owner are less likely to be ranked as more transparent firms by SFI, the study use the following ordered probit regression:

$$\text{Pr}(\text{TD}) = F(\gamma_0 + \gamma_1 \text{VC}_{it} + \gamma_2 \text{INTERNALIZE}_{it} + \gamma_3 \text{FAMILY}_{it} + \gamma_4 \text{FOREIGN}_{it} + \gamma_5 \text{INSTIT}_{it} + \gamma_6 \text{INTEN}_{it} + \gamma_7 \text{BOARD}_{it} + \gamma_8 \text{AGE}_{it} + \gamma_9 \text{SIZE}_{it} + \gamma_{10} \text{ROA}_{it} + \gamma_{11} \text{LEV}_{it} + \gamma_{12} \text{EMP}_{it} + \gamma_{13} \text{HHI}_{it} + \gamma_{14} \text{STDEPS}_{it} + \sum \gamma_i \text{DUN_IND}_{it} + \epsilon_{it}) \quad (1)$$

Where $(\gamma'X) = \Phi(\gamma'X)$.

To test for the third hypothesis that firm values systematically

increases with the rank in ITDRS, the study use OLS regression of firm value on the rank of disclosure and other control variables:

$$Q_{it} = \delta_0 + \delta_1 \text{TD}_{it} + \delta_2 \text{SIZE}_{it} + \delta_3 \text{ROA}_{it} + \delta_4 \text{LEV}_{it} + \delta_5 \text{R\&D}_{it} + \delta_6 \text{ADV}_{it} + \sum \delta_i \text{DUN_IND}_{it} + \epsilon_{it} \quad (2)$$

Variables

Dependent variables

(1) Firm value (Q): The study uses Tobin's Q to proxy for market performance (that is, firm value) in this paper. Tobin's Q is measured as the ratio of firm value to the sum of the replacement cost of tangible assets. However, due to unavailability of replacement cost in Taiwan Stock Exchange, the study follows Lehn et al. (1990), and replaces Tobin's Q with proxy Tobin's Q, measured by the sum of market value of equity and book value of the debt divided by book value of total assets.

(2) Transparency (TD): The study uses the rankings of the information disclosure and transparency, launched by SFI ITDRS, as a proxy for the information transparency of firms. When firms are ranked as Grade A+, A, B, C, and C-, TD is set as 5, 4, 3, 2, and 1, respectively. To be consistent with our predictions, we expect $\delta_1 > 0$.

Independent variables

(1) Control divergence (VC): Following La Porta et al. (1999), the study define an ultimate owner as the shareholder who holds at least 5% of the voting rights of the company and who is not controlled by anybody else. An ultimate owner's voting control level is defined as the ownership stake at the weakest link along the control chains connecting the ultimate owner and the firm. In the same vein, the ultimate owner' the cash flow rights are defined as the sum of the products of ownership stakes of affiliated firms from each control chain identified. Control divergence (VC) denotes between voting rights and cash flow rights of ultimate owner, measured by voting rights minus cash flow rights. The study expects $\gamma_1 < 0$.

(2) INTERNALIZE: This denotes the percentage of supervisors affiliated with controlling owner, as proxied by the number of seats on the supervisors that are held by the largest shareholder as a percentage of the total number of supervisor seats. This variable is a measure of the degree of control over the supervisor by the largest shareholder. The study expects $\gamma_2 < 0$.

(3) FAMILY: Following prior studies (Claessens et al., 2000; La Porta et al., 1999), family control is the sum of following three types of direct and indirect ownership: 1) the shares directly owned by family members; 2) the cross-shareholdings of listed companies in the same conglomerate group and the indirect shareholdings through pyramid structures; and 3) the shareholdings of the nominal agents controlled by the family. In this paper, *FAMILY* is an indicator equal to one if a firm is associated with an ultimate family owner, and zero otherwise. Firms controlled by family tend to have privileged access to firms' information (Adhikari and Tondkar, 1992); the study thus, predicts $\gamma_3 < 0$.

Other control variables

(1) FOREIGN: Increased disclosure can attract foreign investors; once attracted, these investors will be more likely to prompt managers to continue strong disclosure policies (Bradbury, 1991; Craswell and Taylor, 1992). Foreign investor (FOREIGN) is calculated as the proportion of shares outstanding held by foreign investors. The study predicts $\gamma_4 > 0$.

(2) INSTIT: Firms with a high level of institutional ownership may

face pressures to disclose information (Pound, 1988; Healy et al., 1999; Bushee and Noe, 2000). *INSTIT* is measured as the proportion of shares outstanding held by institutional investors. The study predicts $\gamma_5 > 0$.

(3) *INTEN*: Firms investing more in fixed assets tend to have lower agency costs (Myers, 1977), reducing the incentive for firm to disclose (Haniffa and Cooke, 2002). Thus, the incentive for firm to disclose is decreasing in capital intensity. The study defines capital intensity as the ratio of fixed assets to total assets. It predicts $\gamma_6 < 0$.

(4) *BOARD*: Some studies (Fama and Jensen, 1983) argue that the board of directors represents the most efficient method of monitoring and evaluating CEO because of their fiduciary responsibility and privileged access to insider information. However, others argue to the contrary due to the lack of effective governance and for designing managerial contracts with a weak relation between managerial pay and firm performance (Lorsch, 1989). *BOARD* is defined as the log of the number of directors in board. In this paper, the sign of coefficient of *BOARD*, γ_7 is not predicted.

(5) *AGE*: Compared to younger firms, the more established companies are less risky. As a result, the level of a firm's disclosure is expected to be negatively associated with how many years it has been in business (Kim and Ritter, 1999). The study predicts the coefficient of firm age, $\gamma_8 < 0$.

(6) *SIZE*: Some studies show that large firms are more likely to disclose (Lev and Penman, 1990; Lang and Lundholm, 1993), while other studies indicate to the contrary (Brown and Kim, 1993). Given the mixed results, the study not predicts any sign of the association between firm size and disclosure level. Firm size (*SIZE*) is measured as the log of the total asset at the beginning of the year.

(7) *ROA*: Firms with favorable private information disclose the information to receive higher market valuation (Grossman, 1981). Thus, managers of profitable firms have greater incentives to signal their insider information to the efficient market (Clarkson et al., 1994; Lev and Penman, 1990). *ROA* is defined as return on assets. The study predicts $\gamma_{10} > 0$.

(8) *LEV*: Conflict of shareholders and debtors increases with amount of firm' debt. To reduce cost of debt capital, firms with greater leverage have greater incentive to disclose more (Watts and Zimmerman, 1990). *LEV* is defined as total liability divided by total assets. The study predicts $\gamma_{11} > 0$.

(9) *EMP*: While capital market participants are important consumers of corporate information, the firm's employees may also benefit from corporate disclosures. To the extent that firms have been experiencing poor historical performance, employees may desire information earlier about firms' future prospects (Miller and Piotroski, 2000). When employees increase, individual employees have less access to the overall operations of the firm, in turn creating demand for communication. Likewise, when the workforce become more defuse, internal disclosure mechanisms are more likely to become ineffective. In such a case, firms' information disclosure becomes necessary as both a credible and efficient information dissemination mechanism (Miller and Piotroski, 2000). *EMP* is defined as the log number of employees at the end of the year. The study predicts $\gamma_{12} > 0$.

(10) *HHI*: Disclosure of proprietary information could encourage potential competitors to enter the market; in addition, information about production processes and research could be used by competitors to increase their relative market share (Kent and Ung, 2003). Therefore, the study predicts that the incentives for firms to disclose decrease with level industry competition. In this paper, it uses Herfindahl-Hirschman Index (*HHI*) to proxy for level of industry competition. The *HHI* is calculated as the sum of an industry's squared market shares. The *HHI* value assigned to each firm equals its industry average *HHI* over the five years. Since low values of *HHI* denote higher competition level, the study predicts $\gamma_{13} > 0$.

(11) *STDEPS*: Higher variability in past performance is an indication of earnings that are more difficult to forecast (Alford and Berger,

1999). Due to litigation cost, firms with more volatile earnings are reluctant to issue earnings forecasts (Imhoff, 1978; Waymire, 1985; Lev and Penman 1990). In addition, these firms also experience greater reputation loss when issuing earnings forecasts, thereby increasing cost of capital to investors (Kent and Ung, 2003). As a result, firms with greater earnings variability are less likely to disclose more. This study defines earnings variability (*STDEPS*) as the standard deviation in EPS over the past five years, and predicts $\gamma_{14} < 0$.

Control variables for valuation equation

The study includes firm size, measured as the log of total assets in valuation equation. We include debt ratio in equation (2) to control the possibility that creditors are able to lessen managerial agency problems (McConnell and Servaes, 1995; Harvey et al., 2004). Debt ratio is defined as the ratio of total liabilities to total assets. Finally, it includes research and development expenditure (R&D) and advertising expenditures (ADV) since R&D and ADV are positively related to Tobin's Q (Montgomery and Wernfelt, 1988; Morck and Yeung, 1991; Simon and Sullivan, 1993; Wu and Bjornson, 1996). R&D is defined as the ratio of firm's research and development expenditure to sales, and ADV is defined as the ratio of firm's advertising expenditure to sales. All regressions include industry dummy variables based on TSE industry groupings defined.

RESULTS

Univariate analyses

Table 1 presents the descriptive statistics of variables used in the paper. Panel A indicates that the mean (median) of firm value, *Q*, is 1.29 (1.07). The mean voting right (*VOTE*) and cash flow right (*CASH*) is 29.21% and 23.72% respectively. The mean control divergence (*VC*) is 5.47%, indicating the divergence between the ultimate owner's control and his/her equity ownership level in Taiwan. The results, coupled with the fact that controlling stockholders whose voting rights exceed 20% typically have significant controlling power over their firms in Eastern Asia countries (La Porta et al., 1999; Claessens et al., 2000), indicate that controlling stockholders have incentive and ability to influence the decisions that the firm makes, to expropriate firm assets, and to mask their private control benefits by releasing less accurate financial reporting. The mean of *INTERNALIZE* is 57.89%, suggesting that there are a high proportion of firms whose supervisors are affiliated with controlling owners in Taiwan. The mean *FAMILY* of 61% reveals that, among our sample, there are appropriately 61% of firms classified as a family-controlled firm. Table 1 also shows that the mean foreign investors hold 8.06% of outstanding stocks, while the mean domestic institutional investors hold 27.11% of outstanding stocks; this indicates that individual investors on average hold more stocks in Taiwan, relative to those in US. Table 1, Panel B reports descriptive statistics for the variables on which our analyses are based, tabulated by firm-years for transparent firms (high information disclosure) and opaque firms (low information disclosure). The results in Panel B

Table 1. Descriptive statistics (N = 4,859).

Panel A: All sample					
Variable	Mean	Std	Q1	Median	Q3
Q	1.29	0.86	0.85	1.07	1.44
CASH (%)	23.72	16.87	10.62	19.77	33.62
VOTE (%)	29.21	17.09	15.96	26.48	40.35
VC (%)	5.49	9.35	0.05	1.47	6.15
INTERNALIZE (%)	57.89	21.37	40.63	55.56	71.43
FAMILY	0.61	0.49	0.00	1.00	1.00
FOREIGN (%)	8.06	12.49	0.30	2.56	9.72
INSTIT (%)	27.11	19.23	12.21	22.57	39.04
INTEN	0.22	0.18	0.07	0.18	0.32
BOARD	1.88	0.28	1.61	1.95	1.95
AGE	9.04	8.39	4.00	7.00	11.00
SIZE	15.20	1.30	14.29	15.04	15.88
ROA (%)	4.98	9.35	1.06	4.96	9.61
LEV (%)	36.27	16.24	23.66	35.82	47.59
EMP	5.75	1.25	4.93	5.69	6.48
HHI	0.11	0.11	0.04	0.08	0.13
STDEPS	1.45	1.38	0.62	1.10	1.85
R&D (%)	3.65	19.68	0.06	1.30	3.57
ADV (%)	0.56	1.85	0.00	0.00	0.28

Panel B difference between high-/low-rank of information disclosure groups						
Variable	High information disclosure (A+A, N=1,182)		Low information disclosure (B, C, C-, N=3,677)		Mean Difference t-value	Median Difference z-value
	Mean	Median	Mean	Median		
Q	1.430	1.173	1.368	1.140	2.09**	2.751***
CASH (%)	24.298	20.610	21.903	17.035	4.26***	5.026***
VOTE (%)	29.206	26.380	29.234	26.775	-0.05	0.149
VC (%)	4.908	1.350	7.332	1.935	-6.71***	-5.978***
INTERNALIZE (%)	57.110	55.560	60.320	57.140	-4.52***	-4.455***
FAMILY	0.581	1	0.615	1	-2.08**	-2.095**
FOREIGN (%)	11.704	5.520	6.889	1.960	10.33***	13.624***
INSTIT (%)	29.440	24.585	26.364	21.990	4.68***	4.674***
INTEN	0.211	0.166	0.224	0.183	-2.32**	-2.276**
BOARD	1.927	1.946	1.866	1.946	6.22***	5.935***
AGE	10.365	7.000	8.615	6.000	5.73***	5.617***
SIZE	15.774	15.528	15.020	14.930	15.3***	14.353***
ROA (%)	6.459	5.910	4.508	4.630	6.51***	6.439***
LEV (%)	34.667	34.140	36.781	36.420	-3.93***	-3.687***
EMP	6.214	6.087	5.607	5.557	14.02***	13.361***
HHI	0.115	0.082	0.113	0.073	0.54	1.746*
STDEPS	1.487	1.087	1.432	1.097	1.06	0.368
R&D (%)	3.352	1.369	3.740	1.275	-0.95	1.157
ADV (%)	0.514	0.000	0.571	0.002	-1.01	-2.707***

Q represents firm value, measured as the sum of firm equity market value and book value of liability, scaled by book value of total assets; CASH denotes cash flow rights of controlling stockholders; VOTE denotes voting right of controlling stockholders; VC represents the divergence between voting rights and cash flow rights of controlling stockholders; INTERNALIZE is the percentage of supervisors affiliated with controlling owner; FAMILY, which equals one if a firm is associated with an ultimate family owner, and zero otherwise; FOREIGN is the percentage of foreigners' holdings, measured as the ratio of foreigners' holding to outstanding stocks; INSTIT denotes the percentage of institutional investors; INTEN denotes capital intensity, measured as the percentage of fixed assets to total assets; BOARD is measured as log of the number of directors in board; AGE is the number of year since firms is listed; SIZE is firm size, measured as natural log of total assets; ROA is return on total assets; LEV is liability ratio; EMP is natural log of the number of employees; HHI is the degree of industry concentration; STDEPS denotes the variability of earnings; R&D is research and development expense, scaled by net sales; ADV is advertising expense, scaled by net sales.

Table 2. Control divergence and information disclosure levels: Ordered probit model.

Variable ¹	Predicted sign	Mode (1)	Model (2)	Model (3)	Model (4)
VC	-	-0.0023(-3.38***)			-0.0021(-3.13***)
INTERNALIZE	-		-0.0012(-2.11**)		-0.0011(-1.93**)
FAMILY	-			-0.0883(-2.53***)	-0.0687(-1.94**)
FOREIGN	+	0.0026(1.72*)	0.0027(1.76*)	0.0023(1.51*)	0.0023(1.5*)
INSTIT	+	0.0023(2.44**)	0.0035(3.69***)	0.0030(3.2***)	0.0027(2.81***)
INTEN	-	-0.3117(-2.82**)	-0.3276(-2.97***)	-0.3272(-2.96***)	-0.3063(-2.77***)
BOARD	?	-0.0320(-0.51)	-0.0112(-0.18)	-0.0115(-0.18)	-0.0557(-0.88)
AGE	-	-0.0046(-1.74*)	-0.0030(-1.1)	-0.0041(-1.56*)	-0.0031(-1.14)
SIZE	?	0.1866(7.59***)	0.1960(7.94***)	0.1935(7.87***)	0.1934(7.82***)
ROA	+	0.0034(1.62*)	0.0030(1.44*)	0.0033(1.58*)	0.0032(1.57*)
LEV	+	-0.0065(-5.7***)	-0.0067(-5.83***)	-0.0067(-5.89***)	-0.0066(-5.66***)
EMP	+	0.1234(5.31***)	0.1240(5.33***)	0.1239(5.33***)	0.1244(5.35***)
HHI	+	1.2337(2.07**)	1.2300(2.06**)	1.2265(2.06**)	1.2252(2.06**)
STDEPS	-	-0.0322(-2.09**)	-0.0325(-2.11**)	-0.0326(-2.12**)	-0.0340(-2.21**)
DUM_IND	?		INCLUDE		
Probability (LR statistic)		0.0000***	0.0000***	0.0000***	0.0000***
LR statistic		725.88	718.88	720.84	734.17
Pseudo R2		0.0658	0.0652	0.0654	0.0666

DUM_IND represents industry dummy variables based on TSE industry groupings defined. The number in parentheses is Z value. *, **, and *** denotes significance at the 10, 5, 1% (one-tailed), respectively.

Panel B indicate that the mean and median Q for transparent firms (based on firm-years, n=1,182) are significantly higher than those for opaque firms (based on firm-years, n=3,677), as predicted. The results provide preliminary evidence that there is a higher market premium for transparent firms than opaque firms.

As predicted, the mean and median cash flow rights of transparent firms (*CASH*) are significantly higher than those of opaque firms. However, there are no differences in the mean and median voting rights (*VOTE*) between the two groups. More importantly, as revealed in Panel B, the mean and median control divergences of transparent firms (*VC*) are significantly smaller than those of opaque firms at traditional significant levels, indicating that the level of information transparency systematically decreases with the control divergence, as predicted.

It can also be seen that the mean and median *INTERNALIZE* of transparent firms are significantly smaller than those of opaque firms, indicating that there are higher proportion of "independent" supervisors for transparent firms than for opaque firms, in turn leading to higher information transparency for transparent firms. The study also finds that the mean and median *FAMILY* of transparent firms are significantly smaller than those of opaque firms, consistent with our predictions.

Regarding other control variables, the study finds that the mean and median percentages of foreigner holdings (*FOREIGN*) and institutional investors (*INSTIT*) of transparent firms are significantly higher than those of opaque firms at one percent levels, in line with prior studies that

both foreign and institutional investors have higher demand for higher information transparency. Finally, the study finds that the mean and median firm size (*SIZE*), firm profitability (*ROA*), and the number of employees (*EMP*) are significantly higher than those of opaque firms, as predicted. Finally, the mean and median capital intensity (*INTEN*) is significantly smaller than that of opaque firms, as predicted.

Untabulated results that there are significant and negative correlations among *TD*, *VC*, *FAMILY*, and *INTERNALIZE* indicates that firm with smaller control divergence, non-family, and firms with less proportion of supervisors affiliated with controlling owners, are more likely to be ranked as transparent firm, consistent with our predictions. Findings from the regression analyses below provide evidence on the variable associations after controlling for all of the posited effects.

Multiple regression analyses

The effect of controlling owners' on information transparency

Table 2 present the summary results for the ordered Probit regression of *TD* on ownership structure and other control variables. In evaluating the effect of the independent variables on information transparency, the paper found that the models approximately explained at least 6.52% of the variation in the determinants of

Table 3. Information disclosure levels and market premium.

Variable	Predicted sign	OLS	Heckman		FIML	
			Probit	Model 4	Probit	Model 4
Constant		2.0370(16.27***)	-3.7068(-6.77***)	0.3675 (0.47)	-3.3783 (-10.04***)	0.2508(0.33)
TD/DTD	+	0.0195 (1.34*)		0.1231(1.67**)		0.1749(2.39***)
λ	?			0.0216(0.13)		
VC	+		-0.0030(-3.53***)		-0.0028(-3.45***)	
INTERNALIZE	-		-0.0003(-0.45)		-0.0004(-0.6)	
FAMILY	-		-0.0475(-1.04)		-0.0445(-1.01)	
FOREIGN	+		0.0026(1.35*)		0.0032(1.71**)	
INSTIT	+		0.0020(1.58*)		0.0017(1.45*)	
INTEN	-		-0.3620(-2.44**)		-0.5102(-3.88***)	
BOARD	?		-0.0201(-0.24)		-0.0410(-0.52)	
AGE	-		0.0026(0.74)		0.0010(0.34)	
SIZE	?	-0.0593(-6.91***)	0.1785(5.6***)	-0.0149 (-0.41)	0.1888(6.75***)	-0.0094(-0.28)
ROA	+	0.0464(39.43***)	0.0022(0.81)	0.0529(23.88***)	0.0045(1.68*)	0.0541(22.58***)
LEV	-/+	-0.0020(-2.85***)	-0.0080(-5.3***)	0.0036 (2.39***)	-0.0070(-5.68***)	0.0038(2.75***)
EMP	+		0.1325(4.3***)		0.0962(3.62***)	
HHI	+		1.0104(1.18)		-0.2002(-1.02)	
STDEPS	-		-0.0401(-1.99**)		-0.0380(-1.96**)	
R&D	+	0.0067(12.26***)		0.0037 (8.27***)		0.0464(13.02***)
ADV	+	0.0085(1.49*)		0.0133 (0.94)		0.0136(1.04)
DUM_IND	?			INCLUDE		
Probability (Wald chi ²)				0.0000		0.0000
Wald chi ²				1010.76		910.3

The number in parentheses is Z value. *, **, and *** denotes significance at the 10, 5, and 1% (one-tailed), respectively.

of transparent/opaque firms. The explanatory power of the models was significant at the one percent level.

Consistent with H₁, Model (1) reveals that the coefficient of control divergence, *VC*, is negative and statistically significant at one percent level, in the sense that firms are less likely to be ranked as highly transparent firms when the divergence of controlling owner's control-cash rights increases. Using the proportion of supervisors affiliated with controlling owners as the variable of interest, Model (2) shows that the coefficient of *INTERNALIZE* is negative and significant at five percent, indicating that supervisors affiliated with controlling owners tend to have less incentive to monitor private control benefits by controlling owners and are less willing to take disciplinary actions against them. This leads controlling owners to be less likely to voluntarily disclose private information in market observation post system (MOPS) in an attempt to mask true firm's performance and to conceal their private control. This provides supporting evidence of our H₂. Model (3) indicates that the coefficient of *FAMILY* is significantly negative ($P < 0.01$) in the sense that information is less transparent for family firms than for non-family firms.

Regarding other control variables, as predicted, Table 2 shows that the coefficients of *FOREIGN* and

INSTTT are positive and significant, as predicted, while the coefficient of *INTEN* is negative and significant. The coefficients of *SIZE* and *ROA* are also positive and significant, consistent with prior studies. The study also finds that the coefficient of *HHI* has predicted sign and statistically significant, indicating that firms are less likely to disclose more in competitive environment, as predicted. Finally, the coefficient of *STDEPS* is significantly negative, indication that firms are less likely to disclose in more litigious environment, consistent with prior studies.

Finally, Model (4) includes all three variables of interest together in the same regression. The results remain qualitatively unchanged. Specifically, the coefficients of *VC*, *INTERNALIZE*, and *FAMILY* all have predicted sign and statistically significant, consistent with Models (1) to (3). For parsimony, we do not report the results of all industry effect in Table 2.

Information transparency and firm value

Table 3 presents the summary results for OLS regression (2). Since problems of heteroskedasticity generally occur in regression analyses, the study substitute the

White-adjusted *t*-statistic (White, 1980) for *t*-statistics hereafter, and make related inferences accordingly.

As indicated in column (3), the coefficient of information disclosure rank, *TD*, is positive and significant, consistent with our hypothesis 3. The results suggest that market premium systematically increases with information disclosure rank, namely information transparency.

Regarding control variables, we find that the coefficient of *ROA*, *R&D*, and *ADV* are positive and significant, as predicted, indicating that firms with higher profitability, higher research and development intensity, and more advertising expenditure, are more likely to have higher market premium. Finally, the coefficient of *LEV* is significantly negative, as predicted.

Sensitivity analyses

For market premium analysts, an important concern regarding specifications is endogeneity. The key question in estimating equation (2) is that firms *choose* their reporting strategies based on the benefit and cost of voluntarily disclose private information Market Observation Post System. There, one OLS regression of a proxy for market premium (that is, Tobin's Q) on a proxy for firm's voluntary reporting strategy and other control variables will suffer from self-selection bias (Heckman, 1979).

To address the self-selection issue, we estimate the following two-equation model, which has been used in the literature to measure "treatment effects" (Greene, 2003):

$$TD_{it}^* = \gamma \underline{Z}_{it} + \eta_{it} \quad (\text{Disclosure model}) \quad (3)$$

$$Q_{it} = \alpha + B' \underline{X}_{it} + \delta DTD_{it} + \varepsilon_i \quad (\text{Premium model}) \quad (4)$$

Where *DTD* is a dummy variable equal to one if $TD_{it}^* > 0$, zero otherwise. \underline{Z}_{it} is a vector of variables influencing firm's reporting strategy. \underline{X}_{it} is a vector of exogenous variables determining the firm's market premium. ε_{it} and η_{it} are normally distributed disturbances.

Table 3, columns (4) and (5) present the results of Heckman's two-stage least squares (2SLS) in which we use the same exogenous variables from the probit model along with the probability of voluntarily reporting to calculate the estimated value of *TD**. We then use the fitted value from the first-stage probit as an instrument of *DTD* in the second-stage regression on *Q*.

As indicated in column (5), it shows that the coefficient of *DTD* is positive and significant. In addition to Heckman's two-stage least squares, we also use full information maximum likelihood estimation (MLE) to control for self-selection (Kennedy, 1998; Greene, 2003).

Column (7) indicates that the coefficient of *DTD* remains significant and is positive. Therefore, after controlling for the selection-bias issue, our primary inferences remain qualitatively unchanged.

Conclusion

To mitigate information asymmetry between managers and investors and enhance information transparency, TSE and OTC in Taiwan launched ITDRS since 2003. The objective of this measure was to evaluate the level of transparency for Taiwan listed companies.

Based on the ranking score of ITDRS, this paper investigates the determinants of firms being selected as transparent firms by SFI. Specifically, we examine whether the possibility of a firm being classified as transparent firms by SFI systematically varies with the ownership structure. Second, we further explore whether transparent firms have higher market premium than opaque firms.

In line with the hypothesis, the empirical results indicate that firms with greater control divergence, family-controlled companies or firms with greater percentage of supervisors affiliated with controlling owner are less likely to be selected as highly transparent firms by SFI. Consistent with the prediction, the study further find that transparent firms are more highly valued than others. The results remain unchanged after controlling for self-selection bias by using treatment effect model.

This paper is subject to one limitation. As indicated by Haw et al. (2004) and Claessens et al. (2000), *VC* is likely to measure the control divergence with error since the data on cash flow and voting right of the controlling stockholders are constructed using only listed firms. Consequently, the extent that unlisted firms have ownership links with listed firms, the estimates for control and ownership may be underestimated (Claessens et al., 2000). However, the study believes that such measurement errors are most likely to make the results biased against the hypotheses.

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