JBFA Journal of Business Finance & Accounting

Journal of Business Finance & Accounting, 37(9) & (10), 1115–1144, November/December 2010, 0306-686X
doi: 10.1111/j.1468-5957.2010.02213.x

Comprehensive Disclosure of Compensation and Firm Value: The Case of Policy Reforms in an Emerging Market

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Abstract: We set out in the present study to examine the market value of comprehensive disclosure of information relating to the compensation paid to directors and executives. Under the theory of self selection, firms with higher levels of board independence will tend to provide comprehensive disclosure of compensation, thereby leading to lower agency conflicts. Since the authorities in Taiwan chose to adopt a policy of gradual enforcement of compensation disclosure, firms are provided with discretion with regard to any greater levels of transparency that they may choose to provide. We therefore exploit this unique natural experimental setting to examine the effects of compensation disclosure on market value. The evidence indicates that the market provides a higher valuation only to those firms which elect to voluntarily disclose comprehensive information on their compensation practices. However, we also find that even where such disclosure is in excess of the minimum mandatory requirements, lower levels of transparency in the overall disclosure of compensation practices are of very little help with regard to the creation of market value.

Keywords: compensation information, comprehensive disclosure, agency conflict, board independence, self-selection bias

1. INTRODUCTION

The main purpose of this study is to determine whether there are any discernible variations in the market value of firms with different levels of transparency relating to the voluntary disclosure of their compensation practices. We are able to take advantage of a natural and unique experimental setting in Taiwan involving a period during

*The authors are all from National Chiao Tung University, Taiwan. They are grateful for valuable comments from Martin Walker (editor), the anonymous referee, Fu-Ju Yang, Daisy Hsin-I Chou, Robin K. Chou, Wei-Peng Chen, Shih-Fang Lo, Tsung-Rong Lin, Eric S. Lin, Chien-Ling Cheng, Wen-Chien Liu and the seminar participants from the 2009 International Conference of Taiwan Finance Association, the 2009 NCTU International Finance Conference, the 16th Annual Conference on Pacific Basin Finance, Economics, Accounting and Management, and the 2008 Conference on Behavioral Finance and Emerging Markets. They would also like to gratefully acknowledge the financial support provided by the MoE ATU Plan of National Chiao Tung University. (Paper received May 2008, revised version accepted April 2010)

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which the authorities with responsibility for compensation disclosure policy reforms chose to adopt an approach of gradual enforcement. Hence, firms are provided not only with disclosure guidelines and tabular forms, but also with considerable discretion as to whether they might provide higher levels of transparency through voluntary disclosure. Based on data for all listed Taiwanese firms covering the period from 1996 to 2008, our results indicate that voluntary disclosure of comprehensive information on director and executive compensation results in higher market value.

When setting executive compensation arrangements, the overall aim is to align the interests of owners and managers, thereby reducing agency problems. However, such compensation could, in itself, give rise to agency problems. One way to effectively resolve such problems is to provide full disclosure on compensation (Bebchuk and Fried, 2003; Lo, 2003; Gordon, 2005; Muslu, 2009; and Morse et al., 2010). Compensation disclosure is accompanied by several benefits. The prior studies suggest that compensation disclosure and corporate governance are mutually complementary in reducing agency problems (Beekes and Brown, 2006; Coles, 2008; and Henry, 2008). Laksmana (2008) finds that such disclosure can reduce information asymmetry, whilst Bushman and Smith (2001) suggest that signals of transparency provide a channel through which information disclosure affects market value. Using a survey on comment letters, Lo (2003) finds that firms initially opposed to compensation disclosure, subsequently had higher stock returns once the disclosure policy became mandatory.

It is, however, quite clear that in their analysis of the effects of compensation disclosure, the prior studies have invariably tended to focus on mandatory disclosure of information relating to the setting of executive compensation contracts. In contrast, in the present study we explore the market value arising from the voluntary disclosure of the compensation paid to directors and executives, providing incremental contributions to the extant literature in several ways.

Firstly, when discussing voluntary disclosure, it is preferable for data to be sourced from a situation within which disclosure has a discretionary element. Although the US already has relatively severe regulations on compensation disclosure, both the nature of voluntary disclosure and the effects of different levels of transparency are difficult to examine under such a setting (Leuz and Verrecchia, 2000). In our natural experimental environment of Taiwan, firms are provided with considerable discretion in their level of transparency relating to voluntary disclosure, albeit with increasingly severe requirements. The unique data on different levels of transparency obtained by examining annual reports provides a very useful understanding of disclosure behavior, thereby extending this line of research.

The agency problems attributable to compensation arrangements can be identified by outside investors in the Taiwanese market through an examination of whether listed firms voluntarily provide comprehensive disclosure of compensation in their financial reporting. Since the policy reforms on compensation disclosure faced with significant opposition, the authorities provide discretion with regard to the level of transparency in their compensation disclosure. Directors and executives are therefore able to select disclosure preferences that are in their own interests. One approach, particularly for those who are faced with agency problems, is to camouflage the bargaining of personal rents. However, by sending out a signal of good governance mechanisms through the comprehensive disclosure of compensation, firms will invariably achieve a higher market valuation, thereby further benefiting such directors/executives. Our

evidence from the Taiwanese market contributes to the extant literature by addressing the importance of transparency of compensation arrangements on good governance mechanisms.

Secondly, we suggest that it is only comprehensive disclosure which makes any significant contribution to firm value, with other levels of transparency being found to be of little help to the creation of additional market value. The unique data on compensation disclosure, hand-collected from financial reporting in Taiwan, are categorized as 'comprehensive' or 'non-comprehensive' disclosure. The evidence reveals that comprehensive disclosure provides a signal of better governance mechanisms and fewer agency conflicts, thereby leading to higher firm value. In the additional extensions, non-comprehensive disclosure is further decomposed into 'medium' or 'minimal' disclosure, with the result that after controlling for comprehensive disclosure, medium disclosure is found to be of little help to the creation of higher market value.

Thirdly, our paper contributes to the extant literature by indicating the positive market value arising from voluntary disclosure of comprehensive information on compensation. The prior studies have explored the market value of the overall quality of information disclosure and/or levels of transparency in annual reporting. However, despite several studies having gone on to investigate the relationship between compensation disclosure and other factors affecting firm value, such as information asymmetry or abnormal returns, the market value of compensation disclosure has seldom been explored. In light of the current trend towards the increasing demand for transparency in compensation awards, our paper is the first to provide evidence on the market value of voluntary disclosure of compensation, with particular focus on the comprehensive nature of such information.

Fourthly, we provide evidence of the market value of disclosure not only on executive compensation, but also on director compensation, an issue which has seldom been explored. Since the compensation contract provides an indirect way for shareholders to discipline management, the limits of the optimal contract suggest that those compensation contracts which aim to resolve agency problems actually represent a contributory element of the agency conflict itself (Core et al., 1999; Bebchuk and Fried, 2003; Muslu, 2009; and Morse et al., 2010). As noted by Brick et al. (2006), the problem of mutual favors going on between directors and executives is exacerbated if compensation arrangements are camouflaged. One way of resolving such interlocking relationships is to require both parties to disclose their compensation arrangements.

The remainder of this paper is organized as follows. Compensation disclosure policy reforms in Taiwan are discussed in Section 2, with particular focus on the regulatory changes. Section 3 provides a discussion on the theories within the extant literature and our hypothesis development, with Section 4 presenting our empirical results. Finally, the conclusions drawn from this study are presented in Section 5.

2. COMPENSATION DISCLOSURE POLICY REFORMS

It has become generally recognized that compensation disclosure satisfies the needs of outsiders with regard to the assessment of the governance mechanisms in place within a firm. Although policy reforms on the disclosure of compensation have been undertaken in many countries around the world, numerous other countries are still

providing only limited regulations. Our examination is particularly relevant to those capital markets where disclosure regulations are currently undergoing reform.

The authorities in many countries now find themselves faced with considerable opposition as a result of the immediate enforcement of regulations (such as, the 1992 SEC reforms on compensation disclosure). Such mandatory enforcement may be attributable to the excessive, and often invisible, burdens placed on firms, particularly for those with non-optimal compensation arrangements. In contrast to the disclosure reforms featuring mandatory enforcement, the Financial Supervisory Commission in Taiwan adopted a gradual approach to the enforcement of its policy reforms. It simultaneously takes into account both current opposition pressure and final mandatory enforcement of the rules in the future, and thereby providing some potential resolution of the problems associated with immediate mandatory enforcement (Table 1).

This gradual enforcement approach encompasses both mandatory and voluntary compensation disclosure. Within each regulatory change, the authorities provide firms with the tabular forms and the discretion to choose, or to choose not, to provide additional voluntary disclosure in excess of the mandatory requirements in certain areas. There are, however, mandatory requirements for firms to comply with the regulations by providing disclosure of compensation information in other areas, once these regulations are revised. Not only does the gradually increasing severity of the regulations provide a flexible means of achieving the final goal of comprehensive disclosure with a lower burden on firms along the way, but such an approach can also satisfy cultural preferences in many of the emerging markets.

There have been mandatory requirements in place in Taiwan for the disclosure of information on compensation ever since 1995, along with numerous other voluntary options. The 2002, 2006, 2007 and 2008 amendments to the regulations required mandatory disclosure of additional items in the *Detailed Information on Directors*' (*Executives*') *Compensation* (*Table D*) and the *Levels of Directors*' (*Executives*') *Compensation* (*Table L*).[1] These amendments also provide firms with revised tabular forms and guidelines for voluntary disclosure, but more importantly, with discretion as to whether or not they will elect to voluntarily provide additional information in excess of the mandatory requirements.

As an example, a managing director may serve not only as the CEO and director for company A, but also as a director for other corporations. One concern in such situations is that the managing director receives more compensation from the other companies than he does for his work with company A. Such a phenomenon raises significant agency conflicts relating to whether he places sufficient resources into disciplining management and making critical decisions in his main role. With discretion on comprehensive disclosure and his preferred level of transparency, the managing director is likely to disclose less information on his compensation details.

Another concern is that the incentive mechanisms within the compensation contract may include more short-term bonuses, as opposed to long-term measures, such as stocks. Thus, investors may question whether beneficial long-term investment is replaced by short-term, risk-bearing alternatives. Since the level of compensation transparency signals how a director/executive contributes to the company, outsiders

1 These tables are reproduced in the Appendix.

Table 1

Gradual Enforcement of Compensation Disclosure Policy Reforms

Year	*Additional Requirement for Mandatory Disclosure*[a]	*Additional Requirement for Voluntary Disclosure*[a]	*Additional Disclosure Requirement not Quantified in our Analyses*[b]
1995	Mandatory disclosure of lump sum compensation paid to all directors and executives in the *Statement of Changes in Stockholders' Equity*.	Disclosure of total remuneration, cash awards, special allowances, number of share warrants, bonuses and other personal expenditure paid to CEO, directors, managing directors, supervisors and other executives.	Discussion on compensation policies and their association with performance in the *Additional Disclosure Notes*.
2002	Mandatory disclosure of names, position and duration held by CEO or managers in charge of finance or accounting who also hold positions within the accounting firm or any of its affiliated enterprises.	–	–
2003	–	–	Discussion on the effects of proposed compensation on earnings per share, including the amount of compensation proposed at the board meetings, the actual distribution of such compensation, and the degree of discrepancy between the two.
2006	Mandatory disclosure of total number of directors and executives in *Table L*.	1. Disclosure of names of directors and executives in *Table L* and the remuneration from other invested companies and/or subsidiaries in *Table D*. 2. To specify whether the remuneration payment is from fixed remuneration or business entitlement. 3. To specify whether all kinds of compensation being paid are from the positioned (stand-alone) company or from other invested companies and/or subsidiaries.	Discussion on remuneration policies, standards, packages, procedures for setting remuneration, linkage to performance and total remuneration of directors, general managers and assistant general managers paid by the company and all other companies in the consolidated financial statements.
2007	1. Mandatory disclosure of names of directors and executives in *Table L*, and compensation paid to independent directors in *Table D*. 2. To expand *Table L* from five to eight levels.	1. Disclosure of remuneration, bonuses and allowances paid to employed managing directors in *Table D*. 2. To specify whether other payments are from other invested companies or subsidiaries.	–
2008	Disclosure of each item of lump sum compensation paid to directors and executives in *Table D*.	Disclosure of amount of pension paid to each director, supervisor, CEO and other executives in *Table D*.	–

Notes:
[a] *Table L* refers to the table on *Levels of Directors'* (*Executives'*) *Compensation*; *Table D* refers to the table on *Detailed Information on Directors'* (*Executives'*) *Compensation*.
[b] The definitions of the different transparency levels of compensation disclosure in our research design are mainly dependent upon the disclosure tables, essentially because other narrative information on compensation is difficult to quantify.

can identify agency problems through voluntary disclosure, with the perceived signals of disclosure being further reflected in the value of the firm.

3. HYPOTHESES DEVELOPMENT AND RESEARCH DESIGN

(i) Compensation Disclosure and Corporate Governance

Information disclosure represents an external market-based monitoring mechanism which compensates for the failure of board functions (Mallin, 2002; Parum, 2005; and Henry, 2008), whilst Healy and Palepu (2001) note that the primary purpose of disclosure is to communicate performance and governance to investors. Thus, any regulations created to facilitate credible disclosure are essentially aimed at reducing information asymmetry.[2] Nevertheless, Chen et al. (2004) argue that mandatory disclosure is insufficient to render such a mechanism effective, since the inside information available to directors and executives will always be superior to that available to outsiders. Therefore, voluntary disclosure, which refers to any information which is disclosed in excess of the requirements of mandatory compliance, provides an additional governance mechanism (Core, 2001; and Healy and Palepu, 2001).

Compensation disclosure is generally hailed as a remedy for the agency problems created by inappropriate compensation contracts, providing several channels through which it can help to improve governance mechanisms. Firstly, voluntary disclosure on compensation provides a window, both on the board and on the overall quality of governance (Laksmana, 2008; and Karamanou and Nishiotis, 2009), whilst also presenting directors and executives with the non-pecuniary costs of external pressure. Thus, firms with good governance structures are more likely to voluntarily provide higher levels of transparency relating to their compensation practices.[3]

Secondly, the camouflaging of compensation can be reduced when such allocations are publicized; in such cases, compensation arrangements are ultimately shaped by market forces.[4] Scandals involving directors and executives being paid extremely high levels of compensation highlight the fact that compensation contracts could involve inappropriate incentives. Given that the directors find themselves placed in a position which involves contracting between managers and shareholders, self-serving behavior is likely to be higher in those cases within which the propensity for mutual favors is found to exist (Healy and Palepu, 2003; Brick et al., 2006; and Karamanou and Nishiotis, 2009).

Thirdly, through appropriate compensation disclosure, shareholders can readily see that the arrangements in place for executive compensation are aligned with their own interests;[5] furthermore, such disclosure can also strengthen the power of directors over managerial power.[6] Despite the fact that executive compensation is decided by the board, executives still have at least some partial influence on the level, or the content, of the compensation contract that is finally agreed (Murphy, 1999). Thus,

2 Leftwich (1980), Holland (1998), Perotti and Von Thadden (2003) and Bushee and Leuz (2005).
3 Jensen and Murphy (1990), Murphy (1996), Perotti and Von Thadden (2003), Gordon (2005), Beekes and Brown (2006) and Coles (2008).
4 Diekmann (1997), Bebchuk and Fried (2003), Muslu (2009) and Morse et al. (2010).
5 Ward (1998), Zhou (1999), Craighead et al. (2000), Gordon (2005) and Muslu (2009).
6 Conyon (2001), Andjelkovic et al. (2002), Van den Berghe and Levrau (2004) and Laksmana (2008).

the strengthening of board independence through compensation disclosure helps to alleviate such interlocking relationships between directors and executives.[7]

Fourthly, voluntary disclosure on compensation levels provides a signal to outsiders, thereby satisfying their needs to observe the governance and accountability of the firm. Since unreasonable compensation arrangements, as perceived by outsiders, can lead to outrage, firms may voluntarily adopt greater transparency of information on compensation in order to distinguish themselves from other firms (Jensen and Murphy, 1990; and Conyon and Sadler, 2001). Shareholders can also be protected by using such information to identify whether the directors/executives are placing appropriate effort into monitoring those managers who may be pursuing their own personal interests (Ward, 1998; and Conyon, 2001).

As compared to mandatory disclosure, voluntary disclosure provides a signal of greater transparency and other additional benefits,[8] such as higher trading liquidity, improvement in minority shareholder protection and strengthening of company credibility. Korn and Schiller (2003) suggest that equity prices change in opposite directions for voluntary-disclosing and non-disclosing firms. Frantz and Instefjord (2006) also indicate that lack of voluntary disclosure of information endowed with productive value may lead to negative stock returns. Therefore, our research hypothesis is particularly grounded in the criterion of voluntary disclosure, as opposed to the differences between mandatory disclosure and non-compliance. Based upon the unique dataset adopted for this study, our main purpose is to answer the question of whether voluntary disclosure of compensation paid to directors and executives, are associated with the incentive of market value creation.

(ii) The Effects of Comprehensive Disclosure

Voluntary disclosure of compensation provides information which can reduce both the costs of capital and information asymmetry by altering the perceptions of investors with regard to the transparency of the firm.[9] Van den Berghe and Levrau (2004) argue that shareholders can be protected by disclosure since it helps to identify whether rewards are provided on the basis of pay-for-performance, and can also determine whether the benefits of such contracts are in the best interests of shareholders. Andjelkovic et al. (2002) suggest that the association between compensation and performance is significantly positive only for firms voluntarily disclosing executive compensation. Such an association is essentially due to the benefit of long-term viability of the firm arising from such disclosure (Aksu and Kosedag, 2006). The perceptions of outsiders therefore represent an additional monitoring mechanism, with relevant disclosure being further reflected in firm value.

Amongst various levels of transparency, comprehensive disclosure is the most effective mechanism for improving governance mechanisms. Although any voluntary disclosure of compensation can be more informative to investors, just how informative such disclosure is will be largely dependent upon the level of transparency. Barry and Brown (1986) argue that if disclosure is non-comprehensive, then investors will be faced with non-diversified risks, whilst Hill (1997) points out that the basic

7 Hallock (1997), Bebchuk and Fried (2003) and Gordon (2005).
8 Holland (1998) and Karamanou and Nishiotis (2009).
9 Elliott and Jacobson (1994), Holland (1998), Leuz and Verrecchia (2000), Gelb and Zarowin (2002) and Laksmana (2008).

principle behind disclosure is to ensure that the information is comprehensive. Muslu (2009) and Morse et al. (2010) note that a reduction in outrage can be achieved by the camouflaging of rent seeking activities, and that such effects are more severe when compensation disclosure is not comprehensive. Comprehensive information is, therefore, what outsiders actually wish to acquire from voluntary disclosure (Korn and Schiller, 2003).

Although several studies suggest various channels through which market value may be affected by compensation disclosure, the direct relationship between compensation disclosure and firm value has seldom been explored. One very recent example is Morse et al. (2010), who suggest that the comprehensive disclosure of compensation provides an effective solution to the rigging of incentive contracts, which can significantly reduce firm value. Based upon the needs of all parties involved, including the authorities, outsiders, pressure from the public media and from the market, firms voluntarily disclosing comprehensive information on compensation will minimize the bonding costs between shareholders and their agents, as well as the costs of capital, price volatility, poorer transparency signals and information asymmetry.[10] These reduced costs potentially lead to further increases in the market value of the firm.[11] Using the data on gradual enforcement, in which the authorities provide firms with discretion to choose their disclosure transparency level, our study complements this line of research by hypothesizing that market value can be created for a firm through the voluntary disclosure of comprehensive information on compensation.

H_1: Firms providing voluntary comprehensive disclosure of information on the compensation paid to directors and/or executives have a higher market value, as compared to those with non-comprehensive disclosure.

(iii) Data

The data on compensation disclosure are hand-collected from the firms' annual reports and then labeled as either 'comprehensive' or 'non-comprehensive' disclosure.[12] The term 'comprehensive disclosure' indicates that the firms are following the authorities' most recent amendments to the requirements for both mandatory and voluntary disclosure to provide full information on compensation for each director and/or executive (second and third columns of Table 1). Conversely, 'Non-comprehensive disclosure' indicates that the firms are providing a level of transparency relating to compensation information which falls short of comprehensive disclosure.

Although no changes to the regulations were announced during some of the years under examination in the present study, the evidence contained within the dataset does provide different financial implications based upon periods both with and without regulatory changes. On the one hand, the data relating to those periods when no regulatory changes were announced can appropriately capture the overall

10 Holland (1998), Sengupta (1998), Noe (1999), Lang and Lundholm (2000), Richardson and Welker (2001), Botosan and Plumlee (2002), Korn and Schiller (2003), Chen et al. (2004), Laksmana (2008), Henry (2008) and Karamanou and Nishiotis (2009).

11 Makhija and Patton (2004) and Durnev and Kim (2005).

12 The definitions of the different transparency levels of compensation disclosure in our research design are mainly dependent upon the disclosure tables referred to in the *Additional Disclosure Notes*, essentially because other narrative information on compensation is difficult to quantify.

phenomenon of voluntary disclosure, since during such periods, the firms were still provided with tables for use in providing information on comprehensive disclosure and considerable discretion with regard to the level of voluntary disclosure that they chose to adopt. We therefore argue that firms with better governance mechanisms would continue to disclose comprehensive information on compensation.

On the other hand, with the increasing severity of compensation disclosure requirements, the question of whether firms will change their disclosure decisions on the level of transparency can be answered quite effectively by the data relating to periods when regulatory changes were announced. Once the regulations encompass more severe voluntary disclosure items, or once some of the voluntary disclosure requirements become mandatory, those firms with severe agency conflicts will be burdened with the higher costs of the disclosure of additional information on compensation. The greater the amount of information disclosed, the higher the level of transparency relating to the extent to which directors and/or executives are faced with agency problems. The firms would therefore be likely to change their disclosure decisions to provide information in excess of the mandatory requirement, although still below the newly-specified voluntary level, in order to camouflage the full details of their compensation practices.

Since firms listed on public exchanges have a greater propensity for voluntary disclosure (Collett and Hrasky, 2005), our sample selection considers only those firms listed on the Taiwan Stock Exchange. Following the exclusion of financial institutions, the 1996–2008 data ultimately yields a sample of 6,784 firm-year observations. We go on to further quantify the various levels of transparency in compensation disclosure for this sample of observations as our index variables (Table 2 , Panel A).

If a firm voluntarily provides 'comprehensive disclosure' not only on the level of compensation paid to its executives, but also on the level of compensation paid to its directors, then the compensation disclosure variable, CP, takes the value of 1, otherwise 0;[13] therefore, when CP is 0, this indicates a setting of non-comprehensive disclosure. If a firm discloses comprehensive information only on executive compensation, then ECP takes the value of 1, otherwise 0. Similarly, if a firm discloses comprehensive information only on director compensation, then DCP takes the value of 1, otherwise 0. For example, if a firm provides comprehensive information only on the compensation paid to directors then DCP = 1; ECP = 0; CP = 0.[14]

Although comprehensive disclosure is still not mandatory in Taiwan, those firms with better governance mechanisms generally tend to provide comprehensive disclosure of information on compensation. The proportion of firms in Taiwan providing comprehensive disclosure is defined as the number of firms providing comprehensive disclosure divided by the total number of all listed firms. As revealed by Panel B of Table 2, there have been continuing increases in the total number of all listed firms.

13 In accordance with Article 196 of the Company Act, directors are defined as all board members, including standing directors, inside directors, independent (non-executive/supervisory/outside) directors and managing directors. A managing director is responsible not only for his work as a director, but also for his role in executive administration. Therefore, the compensation received for his directorship and that received for his executive administration will both be paid to him in his role as the managing director. If the firm intends to voluntarily disclose comprehensive information on managing director compensation, such information should be revealed in the tables contained in both the *Detailed Information on Executives' Compensation* and the *Employed Directors' Remuneration* section in the *Detailed Information on Directors' Compensation*.

14 As regards the measurement of comprehensive disclosure, DCP and ECP are subsets of CP; that is to say CP = 1 only if DCP and ECP are simultaneously equal to 1.

Table 2
Compensation Disclosure Practices

Panel A: Definitions of Compensation Disclosures[a]

		Non-Comprehensive	
Disclosure of	*Comprehensive*	*Medium*	*Minimal*
Compensation paid to executives and the compensation paid to the directors[b]	CP	MD	MN
Director compensation only	DCP	DMD	DMN
Executive compensation only	ECP	EMD	EMN

Panel B: Compensation Disclosure Practices (%)[c] **Under Various Transparency Levels**

Year	*Comprehensive (CP)*	*Non-Comprehensive*	*Medium (MD)*	*Minimal (MN)*	*No. of Available Listed Firms*
1996	59.54	40.46	28.63	11.83	262
1997	58.96	41.05	29.48	11.57	268
1998	56.48	43.52	34.55	8.97	301
1999	53.10	46.90	41.00	5.90	339
2000	44.89	55.10	52.49	2.61	420
2001	35.08	64.92	62.21	2.71	516
2002	30.68	69.32	66.20	3.12	577
2003	26.65	73.35	69.82	3.53	622
2004	25.08	74.93	71.50	3.43	642
2005	23.96	76.04	72.35	3.69	651
2006	15.58	84.42	82.45	1.97	661
2007	15.78	84.22	83.00	1.22	735
2008	15.82	84.18	83.29	0.89	790

Notes:
[a] If the firm voluntarily provides 'comprehensive disclosure' not only on the level of compensation paid to its executives, but also on the level of compensation paid to its directors, then the compensation disclosure variable, CP, takes the value of 1, otherwise 0. If the firm discloses comprehensive information only on executive compensation, then ECP takes the value of 1, otherwise 0. Similarly, if the firm discloses comprehensive information only on director compensation, then DCP takes the value of 1, otherwise 0. If the firm is found to voluntarily provide 'medium disclosure' not only on the compensation paid to its executives, but also on the compensation paid to its directors, then MD takes the value of 1, otherwise 0. If the firm discloses medium-level information only on executive compensation, then EMD takes the value of 1, otherwise 0. Similarly, if the firm discloses medium-level information only on director compensation, then DMD takes the value of 1, otherwise 0. Finally, if the firm provides only 'minimal disclosure' on the compensation paid to both its executives and directors, then MN takes the value of 1, otherwise 0. If the firm discloses minimal-level information only on executive compensation, then EMN takes the value of 1, otherwise 0. Similarly, if the firm discloses minimal-level information only on director compensation, then DMN takes the value of 1, otherwise 0.
[b] In accordance with Article 196 of the Company Act, directors are defined as all board members, including standing directors, inside directors, independent (non-executive/supervisory/outside) directors and managing directors.
[c] The numbers provided in Panel B refer to the proportion (%) of firms disclosing different levels of transparency on compensation information to the total sample number for that year.

However, the number of firms providing comprehensive disclosure remained almost the same during the sample period. Thus, there have been significant reductions in the relative proportion of firms providing comprehensive disclosure, from 59.54% in 1996 to just 15.82% in 2008.

4. EMPIRICAL ANALYSES

(i) Regression Analyses

To facilitate our analysis of the effects of comprehensive disclosure of director/executive compensation, we adopt regression models using several firm characteristics and profitability control variables. The variables used in this study are obtained from the *Taiwan Economic Journal* database, with the descriptive summaries and the correlation coefficients being provided in Table 3.

The signals of good governance that are provided by comprehensive disclosure, along with the resultant effects, such as the reduced costs of capital and information asymmetry, are readily perceived by investors. We therefore expect to find that those firms providing comprehensive disclosure of information on compensation will have a higher market value, as compared to those firms with non-comprehensive disclosure levels. We begin by adopting an OLS regression to examine the association between comprehensive disclosure and firm value:

$$Q_i = \alpha + \delta\,\mathrm{CP}_i + \beta_1 \mathrm{SIZE}_i + \beta_2 \mathrm{DEBT}_i + \beta_3 \mathrm{INVST}_i + \beta_4 \mathrm{FCF}_i + \beta_5 \mathrm{ROA}_i + \beta_6 \mathrm{EPS}_i + \varepsilon_i \quad (1)$$

where firm value (Q) is measured by Tobin's Q, which is defined as the sum of the firm's market capitalization and the book value of debt, divided by the book value of total assets; and CP refers to the comprehensive disclosure of information on the compensation paid to directors and executives.

The control variables come under the two categories of firm characteristics and profitability. Firm characteristics include firm size (SIZE) measured by the natural log of total assets; debt ratio (DEBT) measured by the ratio of total liabilities to total assets; proprietary ratio (INVST) measured by the ratio of total investment to total assets; and free cash flow (FCF) measured by the ratio of operating cash flow to total assets. Following Healy et al. (1999), the control variables for profitability include return on assets (ROA) and earnings per share (EPS). ε is the error term; and α, δ and β are the parameters to be estimated.

The coefficient of Q on CP in Model I of Table 4 is significantly positive, thereby providing support for hypothesis 1, which posits that firms providing voluntary disclosure of comprehensive information on director and executive compensation will have a higher market value. The economic significance of this is provided by the coefficient of 0.016 on comprehensive disclosure in Model I, which indicates that, *ceteris paribus*, if a firm voluntarily provides comprehensive disclosure on the compensation paid to directors and/or executives, then this implies a market value enhancement of 1.6 percentage points.

Firms may, however, elect to disclose comprehensive information on either director or executive compensation, but not both. We therefore use alternative variables to examine the effect of comprehensive disclosure on the compensation paid to directors (DCP) or executives (ECP), re-running regression (1) by replacing CP with DCP and ECP. Significantly positive effects are discernible in Table 4 for DCP in Model II and ECP in Model III, thereby providing support for hypothesis 1.

The relatively higher rejection power for ECP, as compared to DCP, suggests that outsiders are more concerned with self-serving behavior amongst executives, although

Table 3

Descriptive Summary and Correlation Coefficient Matrix[a]

	Mean	*S.D.*	*Min.*	*Med.*	*Max.*	*Q*	*CP*	*DCP*	*ECP*	*SIZE*	*DEBT*	*INVST*	*FCF*	*ROA*
Q	1.510	0.730	0.012	1.575	18.877									
CP	0.419	0.493	0.000	0.000	1.000	0.010								
DCP	0.354	0.478	0.000	0.000	1.000	0.010	0.960***							
ECP	0.361	0.480	0.000	0.000	1.000	0.010	0.920***	0.880***						
SIZE	15.592	1.314	10.500	15.394	20.594	0.090***	0.090***	0.070***	0.090***					
DEBT	43.910	17.428	1.096	44.969	98.715	−0.920***	0.002	0.001	0.030	0.250***				
INVST	27.950	16.754	0.000	24.100	99.540	0.900***	0.010	0.010	−0.010	0.040***	−0.920			
FCF	7.930	4.093	−6.615	7.289	94.782	0.001	0.020	0.020	0.020	0.020	−0.020	0.001***		
ROA	2.340	5.082	−100.720	4.750	50.640	0.001	0.010	0.010	0.010	−0.050***	−0.010	0.002	0.004	
EPS	1.172	2.513	−18.240	1.002	57.850	−0.010	0.020	0.010	0.010	−0.020	−0.020	−0.010	0.610***	0.590***

Notes:

[a] Firm value (Q) is the Tobin's Q, which is defined as the sum of the firm's market capitalization and the book value of debt, divided by the book value of total assets. If the firm voluntarily provides comprehensive disclosure not only on the level of compensation paid to its executives, but also on the level of compensation paid to its directors, then the compensation disclosure variable, CP, takes the value of 1, otherwise 0. If the firm discloses comprehensive information only on executive compensation, then ECP takes the value of 1, otherwise 0. Similarly, if the firm discloses comprehensive information only on director compensation, then DCP takes the value of 1, otherwise 0. The control variables come under two categories of firm characteristics and profitability. Firm characteristics include firm size (SIZE) measured by the natural log of total assets; debt ratio (DEBT) measured by the ratio of total liabilities to total assets; proprietary ratio (INVST) measured by the ratio of total investment to total assets; and free cash flow (FCF) measured by the ratio of operating cash flow to total assets. The profitability includes return on assets (ROA) and earnings per share (EPS). Mean is the value of mean average; S.D. is the value of standard deviation; Min. is the value of minimum; Med. is the value of medium; Max. is the value of maximum.

[b] *** indicates significance at the 1% level.

Table 4

The Effects of Comprehensive Compensation Disclosure on Firm Value

	OLS						*Ohlson Model*			
	Model I		*Model II*		*Model III*		*Model IV Sales as Deflator*		*Model V Shares Outstanding as Deflator*	
	Coefficient	*t-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*
CP	0.016	4.26***	–	–	–	–	0.001	2.71***	0.003	3.63***
DCP	–	–	0.014	2.99***	–	–	–	–	–	–
ECP	–	–	–	–	0.013	4.83***	–	–	–	–
SIZE	−0.016	−8.13***	−0.016	−8.10***	−0.016	−8.06***	–	–	–	–
DEBT	−0.010	−71.79***	−0.010	−71.75***	−0.010	−71.80***	–	–	–	–
INVST	0.001	3.26***	0.001	3.27***	0.001	3.20***	–	–	–	–
FCF	0.0001	0.42	0.0001	0.43	0.0001	0.42	–	–	–	–
ROA	0.002	2.81***	0.002	2.82***	0.001	2.77***	–	–	–	–
EPS	0.062	0.40	0.046	0.40	0.060	0.39	–	–	–	–
BV	–	–	–	–	–	–	0.074	265.85***	0.038	59.38***
AER[a]	–	–	–	–	–	–	0.012	254.06***	0.002	26.88***
Constant	0.255	8.89***	0.254	8.86***	0.253	8.82***	−0.001	−1.22	0.003	2.20**
Adj. R^2	0.427		0.427		0.427		0.944		0.670	
MSE	0.202		0.202		0.202		0.052		0.073	
No. of obs.	6,784		6,784		6,784		6,784		6,784	

Notes:

This table presents the estimated coefficients from the following regression models:

$$\text{Model I: } Q_j = \alpha_1 + \delta^1 \text{CP}_i + \beta_1^1 \text{SIZE}_i + \beta_2^1 \text{DEBT}_i + \beta_3^1 \text{INVST}_i + \beta_4^1 \text{FCF}_i + \beta_5^1 \text{ROA}_i + \beta_6^1 \text{EPS}_i + \varepsilon_i^1$$

$$\text{Model II: } Q_j = \alpha_2 + \delta^2 \text{DCP}_i + \beta_1^2 \text{SIZE}_i + \beta_2^2 \text{DEBT}_i + \beta_3^2 \text{INVST}_i + \beta_4^2 \text{FCF}_i + \beta_5^2 \text{ROA}_i + \beta_6^2 \text{EPS}_i + \varepsilon_i^2$$

$$\text{Model III: } Q_j = \alpha_3 + \delta^3 \text{ECP}_i + \beta_1^3 \text{SIZE}_i + \beta_2^3 \text{DEBT}_i + \beta_3^3 \text{INVST}_i + \beta_4^3 \text{FCF}_i + \beta_5^3 \text{ROA}_i + \beta_6^3 \text{EPS}_i + \varepsilon_i^3$$

$$\text{Models IV and V: } \text{MV}_i = \alpha_0^4 + \alpha_1^4 \cdot \text{BV}_i + \alpha_2^4 \text{AER}_i^a + \alpha_3^4 v_i + \varepsilon_i^4.$$

[a] The dependent variable in Models I, II and III is the Tobin's Q (Q), which is defined as the sum of the firm's market capitalization and the book value of debt, divided by the book value of total assets. If the firm voluntarily provides comprehensive disclosure not only on the level of compensation paid to its executives, but also on the level of compensation paid to its directors, then the compensation disclosure variable, CP, takes the value of 1, otherwise 0. If the firm discloses comprehensive information only on executive compensation, then ECP takes the value of 1, otherwise 0. Similarly, if the firm discloses comprehensive information only on director compensation, then DCP takes the value of 1, otherwise 0. The control variables come under two categories of firm characteristics and profitability. Firm characteristics include firm size (SIZE) measured by the natural log of total assets; debt ratio (DEBT) measured by the ratio of total liabilities to total assets; proprietary ratio (INVST) measured by the ratio of total investment to total assets; and free cash flow (FCF) measured by the ratio of operating cash flow to total assets. The profitability includes return on assets (ROA) and earnings per share (EPS). The dependent variable in Models IV and V is the market value of equity for firm i (MV) on the last date of the annual report announcements; BV_i is the book value of equity; abnormal earnings, AER_i^a, is given by $\text{AER}_i^a \equiv \textit{Earnings}_i - r_f \cdot \text{BV}i$, where r_f is the one-period risk-free rate of return; v_i is other value-relevant information, addressing the comprehensive disclosure (CP).

[b] *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level.

it may well be that directors are also faced with agency conflicts. Such concerns of transparency on executive compensation are more significantly reflected in the value of the firm. However, comprehensive disclosure on executive compensation also provides information on the future development of business strategies. Therefore, those firms that find themselves burdened with higher intrinsic costs relating to information on executive compensation are also likely to simultaneously disclose comprehensive information on compensation awarded to directors once they have already taken the decision to provide comprehensive disclosure on the compensation awarded to their executives, thereby leading to similar effects for both CP and ECP.

Throughout any policy reform periods, regardless of whether or not such periods involve any regulatory changes, comprehensive disclosure provides signals of better governance mechanisms. Thus, during periods when there are no regulatory changes, firms still have to decide whether to continue to voluntarily provide comprehensive disclosure. Furthermore, when more severe regulatory requirements on mandatory and voluntary disclosure are imposed by the authorities, firms are again faced with critical disclosure decisions as to whether they should follow the latest requirement to provide additional information on compensation in their subsequent annual reports. The evidence suggests that throughout the policy reform period in Taiwan, those firms providing comprehensive disclosure of compensation have a higher market value.

(ii) Accounting-Based Valuation Model

The Ohlson accounting-based valuation model can reflect other information relating to the equity market value which goes beyond information on issues such as earnings, book value or dividends as provided in their annual reports (Ohlson, 1995). This model has been adopted in prior studies as the means of determining whether disclosure transparency can enhance the effects of accounting information on firm value.[15]

In this study, the index of voluntary disclosure of compensation, taken from the *Additional Disclosure Notes*, is seen as financial information of relevance to market value. The Ohlson model is specified under the following regression:

$$\mathrm{MV}_i = \alpha_0 + \alpha_1 \cdot \mathrm{BV}_i + \alpha_2 \mathrm{AER}_i^a + \alpha_3\, v_i + \varepsilon_i \tag{2}$$

where MV_i is the market value of equity for firm i at the last annual report announcement date (four months after the end of a fiscal year); BV_i is the book value of equity; abnormal earnings (AER_a^i) is provided by $\mathrm{AER}_a^i = \mathit{Earnings}_i - r_f \cdot \mathrm{BV}_i$, where r_f is the one-period risk-free rate of return; and v refers to other information relevant to market value which addresses the comprehensive disclosure of information on compensation (CP). With the one exception of CP, all of the other variables within the model are deflated by multiple deflators, including sales and number of shares outstanding.[16] The results on CP (Models IV and V of Table 4) find that after controlling for the book

15 Cahan et al. (2000), Strong (2000), Lundholm and Myers (2002), Chen et al. (2002) and Lapointe-Antunes et al. (2006).
16 Aboody (1996), Rees (1997), Barth et al. (1998), Chen (2003) and Akbar and Stark (2003).

value of equity and earnings, firms voluntarily disclosing comprehensive information on compensation have a higher value.[17]

(iii) Sub-Sample Analysis

We further decompose the data into two sub-samples comprising of 'electronics' firms using larger proportions of stock bonuses and 'non-electronics' firms which are generally regarded as having relatively weak governance mechanisms. Prior to the 2006 amendment of the Business Accounting Law, stock-based bonuses were not recorded as remuneration.[18] However, despite the fact that par-value stock-based bonuses do provide incentives for executives, the market value of such bonuses is extremely difficult to evaluate. This may therefore provide a particularly useful way for executives and directors to camouflage their earnings. Thus, outsiders are no longer able to use compensation disclosure as the sole means of identifying agency problems (Core et al., 1999), particularly for electronics firms in Taiwan since these firms tend to use large proportions of stock bonuses, with varied lock-up periods, as the means of distributing the benefits of the considerable growth in their stock prices. Therefore, in this study we use sub-samples of firms in the electronics and non-electronics industries to identify the effects of compensation disclosure, with firms in the electronics (non-electronics) industry providing a sample of 2,374 (4,410) firm-year observations.

The coefficients of CP in Models I, II and III of Table 5 are insignificant, thereby providing inconclusive evidence on hypothesis 1; thus, for firms using larger proportions of stock bonuses, the greater transparency of their compensation disclosure appears to be of no help in the creation of firm value. The coefficients of CP in Models IV, V and VI of Table 5 are significantly positive; the economic significance for non-electronics firms is a higher market valuation, as compared to that for electronics firms which tend to use large proportions of difficult-to-value stock bonuses ($0.022 > 0.008$). Whilst providing support for hypothesis 1, this also suggests that a higher market value is created for non-electronics firms – characterized as being relatively weakly governed – when comprehensive information on compensation is disclosed which satisfies the needs of outsiders with regard to identifying agency conflicts.

The evidence presented in Tables 4 and 5 suggests that investors have a clear need for detailed information on the compensation awards made to directors and executives. Thus, comprehensive disclosure provides signals of better governance structures, leading to positive effects on the market value of firms. However, the comprehensive disclosure provided by firms which use significant proportions of stock bonuses as the means of camouflaging their earnings is found to have no effect on market value.

(iv) Endogeneity and Self-Selection Bias

Since firms will choose their level of disclosure based upon consideration of the costs and benefits associated with comprehensive disclosure, CP_i will be endogenous, and as such, the OLS regressions would tend to suffer from self-selection bias. As noted

17 We also examine the Ohlson model with the opening market value of assets (Barth et al., 1998; and Akbar and Stark, 2003) and the book value of capital (Green et al., 1996; Rees, 1997; Chen, 2003; and Akbar and Stark, 2003) as the deflators, and find that the results are very similar.

18 Stock bonuses paid to executives and directors prior to 2006 are treated as distributed earnings in the *Retained Earnings Statement*.

Table 5

The Effects of Comprehensive Disclosure of Compensation for the Sub-Samples

	Electronics Firms						*Non-electronics Firms*					
	Model I		*Model II*		*Model III*		*Model IV*		*Model V*		*Model VI*	
	Coefficient	*t-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*
CP	0.008	1.52	–	–	–	–	0.022	2.34**	–	–	–	–
DCP	–	–	0.008	1.43	–	–	–	–	0.021	2.28**	–	–
ECP	–	–	–	–	0.007	1.23	–	–	–	–	0.019	2.09**
SIZE	−0.020	−5.93***	−0.020	−5.92***	−0.020	−5.88***	−0.014	−5.94***	−0.014	−5.94***	−0.014	−5.91***
DEBT	−0.011	−36.27***	−0.011	−36.30***	−0.011	−36.27***	−0.010	−61.73***	−0.008	−60.98***	−0.010	−61.77***
INVST	0.001	1.73*	0.001	1.71*	0.001	1.69*	0.001	3.04***	0.001	3.04***	−0.001	3.00***
FCF	0.0001	4.79***	0.0001	4.89***	0.0001	4.82***	0.0001	0.09	0.0001	0.09	0.0001	0.09
ROA	0.002	4.80***	0.002	4.90***	0.002	4.83***	0.001	0.97	0.001	0.98	0.0007	0.95
EPS	0.001	4.79***	0.001	4.89***	0.001	4.82***	0.002	0.01	0.001	0.01	0.002	0.01
Constant	0.270	5.38***	0.269	5.36***	0.269	5.34***	0.243	6.93***	0.243	6.92***	0.242	6.91***
Adj. R^2	0.364		0.364		0.364		0.489		0.489		0.489	
MSE	0.234		0.234		0.234		0.178		0.178		0.178	
No. of obs.	2,374		2,374		2,374		4,410		4,410		4,410	

Notes:
This table presents the estimated coefficients from the following regression models:[a]

$$\text{Model I and IV: } Q_j = \alpha_1 + \delta_1^1 \text{CP}_i + \beta_1^1 \text{SIZE}_i + \beta_2^1 \text{DEBT}_i + \beta_3^1 \text{INVST}_i + \beta_4^1 \text{FCF}_i + \beta_5^1 \text{ROA}_i + \beta_6^1 \text{EPS}_i + \varepsilon_i^1$$

$$\text{Model II and V: } Q_j = \alpha_2 + \delta_2^2 \text{DCP}_i + \beta_1^2 \text{SIZE}_i + \beta_2^2 \text{DEBT}_i + \beta_3^2 \text{INVST}_i + \beta_4^2 \text{FCF}_i + \beta_5^2 \text{ROA}_i + \beta_6^2 \text{EPS}_i + \varepsilon_i^2$$

$$\text{Models III and VI: } Q_j = \alpha_3 + \delta_3^3 \text{ECP}_i + \beta_1^3 \text{SIZE}_i + \beta_2^3 \text{DEBT}_i + \beta_3^3 \text{INVST}_i + \beta_4^3 \text{FCF}_\text{i} + \beta_5^3 \text{ROA}_i + \beta_6^3 \text{EPS}_i + \varepsilon_i^3.$$

[a] The dependent variable is the Tobin's Q (Q), which is defined as the sum of the firm's market capitalization and the book value of debt, divided by the book value of total assets. If the firm voluntarily provides comprehensive disclosure not only on the level of compensation paid to its executives, but also on the level of compensation paid to its directors, then the compensation disclosure variable, CP, takes the value of 1, otherwise 0. If the firm discloses comprehensive information only on executive compensation, then ECP takes the value of 1, otherwise 0. Similarly, if the firm discloses comprehensive information only on director compensation, then DCP takes the value of 1, otherwise 0. The control variables come under two categories of firm characteristics and profitability. Firm characteristics include firm size (SIZE) measured by the natural log of total assets; debt ratio (DEBT) measured by the ratio of total liabilities to total assets; proprietary ratio (INVST) measured by the ratio of total investment to total assets; and free cash flow (FCF) measured by the ratio of operating cash flow to total assets. The profitability includes return on assets (ROA) and earnings per share (EPS).
[b] *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level.

in the political cost hypothesis of Wagenhofer (1990), if the comparative benefits of comprehensive disclosure are greater than the costs, a firm will self-select its preferred choice to signal a higher level of transparency (Christensen and Feltham, 2000; and Suijs, 2005). Leuz and Verrecchia (2000) also adopt the self-selection model to examine the effects of increased disclosure levels. In response to the potential problems of endogeneity and self-selection bias, we adopt the two-stage Heckman model (1979), with the first stage of the disclosure equation being estimated by the probit model:

$$\begin{aligned} \mathrm{CP}_i^* &= \alpha + \mathbf{Z}_i\gamma + \beta_1\mathrm{SIZE}_i + \beta_2\mathrm{DEBT}_i + \beta_3\mathrm{INVST}_i \\ &\quad + \beta_4\mathrm{FCF}_i + \beta_5\mathrm{ROA}_i + \beta_6\mathrm{EPS}_i + \eta_i \\ \mathrm{CP}_i &= 1 \quad \text{if } \mathrm{CP}_i^* > 0 \\ \mathrm{CP}_i &= 0 \quad \text{if } \mathrm{CP}_i^* \leq 0 \end{aligned} \tag{3}$$

where CP_i^* is the unobservable net benefit of comprehensive disclosure; CP_i is equal to 1 only when the net benefits of comprehensive disclosure (CP_i^*) are greater than zero, thereby inducing the firm to voluntarily provide comprehensive disclosure of compensation; γ is a vector of the parameters to be estimated by regressing CP_i on a vector of the instrumental variables ($\mathbf{Z}_i$). The vector $\mathbf{Z}$ includes the control variables in Model I and the instruments for comprehensive disclosure.[19]

Using the instruments and their corresponding parameters, we can further calculate the term $\lambda_i = [\phi(\mathbf{Z}_i\gamma_{13})/\Phi(\mathbf{Z}_i\gamma_{13})] \cdot \mathrm{CP}_i + [(-\phi(\mathbf{Z}_i\gamma_{13}))/\Phi(\mathbf{Z}_i\gamma_{13})] \cdot (1 - \mathrm{CP}_i)$ to correct for the self-selection bias, where $\varphi(\cdot)$ and $\Phi(\cdot)$ are the respective density function and cumulative distribution function for the standard normal. The second stage involves the OLS estimation in the valuation model which includes the addition of the λ_i regressor and the fitted values of comprehensive disclosure ($\hat{\mathrm{CP}}_i$).

$$\begin{aligned} Q_j &= \alpha + \delta\,\hat{\mathrm{CP}}_i + \beta_1\mathrm{SIZE}_i + \beta_2\mathrm{DEBT}_i + \beta_3\mathrm{INVST}_i \\ &\quad + \beta_4\mathrm{FCF}_i + \beta_5\mathrm{ROA}_i + \beta_6\mathrm{EPS}_i + \sigma_{\varepsilon,\eta}\lambda_i + \varepsilon_i \end{aligned} \tag{4}$$

where $\sigma_{\varepsilon,\eta}$ is the error term covariance, with ε_i and η_i, satisfying certain assumptions.[20]

As noted in many of the prior studies, the instruments determining comprehensive disclosure may be attributable to the level of board independence.[21] Khanna et al. (2004) find that Taiwan has a relatively lower governance index, essentially as a result of higher family control, pyramidal structures and lower transparency. We therefore adopt the internal governance mechanisms of ownership structure and board composition as instruments in the present study.

19 The instruments comprising of proxies of board independence encompass two dimensions of internal governance mechanisms: ownership structure and the board of directors. The criterion of ownership includes the proportion of shares owned by domestic trust funds, outside funds, managers, controlling directors, family funds, family unlisted corporations and the critical controlling shareholding. The criterion for the board of directors includes the proportion of directors appointed by outside listed corporations and family unlisted corporations, the proportion of supervisors appointed by outside listed corporations and outside funds, and the size of the board.

20 These assumptions are: (i) that the two error terms follow bivariate normal distribution with unity normalized standard deviations, σ_ε^2 and σ_η^2, and correlation $\rho_{\varepsilon,\eta}$, i.e., $\varepsilon_i,\ \eta_i \sim N\ (0,\ 0,\ \sigma_\varepsilon^2,\ 1,\ \rho_{\varepsilon,\eta})$; and (ii) that $\varepsilon_i|\eta_i = \sigma_{\varepsilon,\eta}\eta_i + \upsilon_i$, where $\upsilon_i \sim N(0,1)$ and $E(\varepsilon_i|\eta_i) = \sigma_{\varepsilon,\eta}\eta_i$.

21 Core et al. (1999), Core (2001), Ryan and Wiggins (2004), Makhija and Patton (2004), Gordon (2005) and Laksmana (2008).

Since Bushee and Noe (2000) and Barako et al. (2006) argue that outside shareholders require higher disclosure standards, we take the percentage of shares owned by domestic trust funds (%DTF) and the percentage of shares owned by outside funds that are not controlled by major shareholders (%OF) as additional instruments.[22]

The share interests of managers are maximized by their greater willingness to provide higher disclosure transparency, thereby further increasing the market value of the firm.[23] However, it is noted in Nagar et al. (2003) that managers focusing on personal interests may be reluctant to disclose private information, particularly in those circumstances where there is a lack of any real incentives. We therefore take the proportion of shares owned by executives (%MNG) as an instrumental variable.

Concentrated ownership could lead to lower transparency and fraudulent activities, particularly in firms with poor board independence. Thus, several studies suggest that disclosure may reduce the information advantages of insiders.[24] We therefore include two additional instruments, controlling directors (%CD), which is measured as the percentage of shares owned by major shareholders on the board, and critical control (%CC), which is the percentage of shares the major directors need to hold to achieve absolute voting power or control rights (Cubbin and Leech, 1983).

Another property of the Taiwanese data is the prevalence of family control, which is common to many Asian and European capital markets. Setia-Atmaja et al. (2007) find that the board independence is lower in family firms, whilst Chen et al. (2008) suggest that firms with higher family ownership tend to disregard voluntary disclosure practices. Therefore, the percentage of shares that are owned by foundations controlled by family directors (%FF) and the percentage of shares that are owned by unlisted companies controlled by family directors (%FU) are both included as instruments.

Byrd et al. (1998) argue that factors encouraging compensation committees to provide voluntary disclosure are the major concerns of external stakeholders. Soffer (1998) also suggests that such concerns provide a mechanism which can effectively disclose poor compensation practices. Furthermore, both Ho and Wang (2001) and Hossain et al. (2005) find positive associations between voluntary disclosure and the proportion of independent directors on the board. Therefore, the proportion of directors and supervisory representatives appointed by outside listed corporations (OCD and OCS), and the percentage of supervisory representatives of outside funds (OFS), none of which are controlled by major shareholders, are included as instruments. However, a higher proportion of family directors may also be detrimental to board independence (Chen et al., 2008). We therefore, take the percentage of directors appointed by unlisted corporations under family director control (FCD) as an additional instrument.

Since the positive association between board size and firm performance can be strengthened by the greater monitoring power arising from larger board size,[25] firms with such monitoring power will tend to voluntarily provide comprehensive disclosure. However, several studies suggest that as boards become smaller, they may also become more capable of holding frank discussions and engaging in more effective

22 Major shareholders are defined as investors owning a significant proportion (10%) of the shares. For newly-listed companies, major shareholders are defined as investors who are ranked in the top ten, in terms of total holding stake, or those with more than a 5% holding stake in the company.
23 Core (2001), Nagar et al. (2003) and Makhija and Patton (2004).
24 Holland (1998), Huddart et al. (1999), Hossain et al. (2005) and Bannister and Newman (2006).
25 Dalton et al. (1999) and Certo et al. (2001).

monitoring.[26] As a result, smaller board size can enhance the informative nature of disclosure. Board size (BSIZE), measured as the ratio of the total number of directors to the natural log of total assets, is therefore taken as an additional instrument.

We further examine whether comprehensive disclosure leads to a higher market value after controlling for potential problems of endogeneity and self-selection bias. Table 6 reveals that λ_i is significant, indicating that the choice of comprehensive disclosure is not random, and that self-selection bias is prevalent in our setting. In particular, various monitoring mechanisms, including the pressure provided by fewer insiders, more outsiders, smaller board size, higher managerial shareholdings, lower family control and diversified ownership, are all found to lead to higher levels of transparency. The evidence suggests that under a scenario within which firms are given broad discretion with regard to their provision of greater levels of transparency, firms with higher levels of board independence will voluntarily provide comprehensive disclosure of compensation, thereby leading to higher market value.

(v) Time-Series Effect

In order to control for the potential time-series effect, we examine the effect of compensation disclosure on firm value, not only by year, but also under a fixed effects model. The evidence shows that most of the effects on firm value arising from the comprehensive disclosure of compensation are significantly positive.[27] The insignificant effects found in the 1996–1998 data may be attributable to the Asian financial crisis and the subsequent bubbles, whilst another explanation may be that the economic consequences of voluntary disclosure were pre-matured at the start of the policy reforms. However, the results of the 1999–2008 data provide support for hypothesis 1, that firms providing comprehensive disclosure of information on compensation have a higher market value. Furthermore, the same findings are also revealed by the panel data analysis.

(vi) The Effects of Non-comprehensive Disclosure

The foregoing evidence suggests that comprehensive disclosure of information on compensation provides a higher market value. However, within the extant literature on the economic consequences of compensation disclosure, it remains unclear as to whether similar effects on market value will be obtained for compensation disclosure at medium levels of transparency. Wagenhofer (1990) argues that if discretionary choice provides firms with such flexibility with regard to the level of transparency, then they will generally prefer to adopt only partial disclosure. Lo (2003) also suggests that firms will elect to provide only partial disclosure if there are coexisting costs and benefits related to compensation disclosure. Thus, firms may elect to provide non-comprehensive disclosure as opposed to comprehensive disclosure in order to avoid any increase in the non-proprietary costs arising from full disclosure.

26 Jensen (1993), Vafeas (2000) and Gordon et al. (2002).

27 The coefficient on CP in the fixed-effects model shows an economically significant premium in market value of 12%, indicating the firm's response to the needs of outsiders for comprehensive disclosure on compensation. Semykina and Wooldridge (2005) indicate that when the potential problem of endogeneity within the primary equation comes as a result of self-selection bias, inconsistent estimations may be obtained from the application of either the fixed-effects or the random-effects model. The coefficient estimates of CP may therefore be inconsistent. For space considerations, the time-series robustness results are not provided here.

Table 6

The Effects of Comprehensive Disclosure of Compensation with Heckman Models

	Ownership Structure as Instruments				*Board Composition as Instruments*			
	Model I		*Model II*		*Model I*		*Model II*	
	Coefficient	*z-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*z-statistic*	*Coefficient*	*t-statistic*
CP	–	–	0.963	8.29***	–	–	1.003	5.51***
%DTF	1.183	2.55**	–	–	–	–	–	–
%OF	1.833	5.21***	–	–	–	–	–	–
%MNG	0.366	0.68	–	–	–	–	–	–
%CD	−0.569	−7.44***	–	–	–	–	–	–
%CC	−0.864	−3.70***	–	–	–	–	–	–
%FF	−1.453	−4.33***	–	–	–	–	–	–
%FU	−0.586	−3.97***	–	–	–	–	–	–
OCD	–	–	–	–	0.799	2.76***	–	–
OCS	–	–	–	–	2.810	4.73***	–	–
OFS	–	–	–	–	0.844	0.86	–	–
FCD	–	–	–	–	−0.006	−0.10	–	–
BSIZE	–	–	–	–	−0.096	−1.14	–	–
SIZE	0.091	5.79***	−0.013	−5.55***	0.047	3.69***	−0.029	−6.78***
DEBT	0.002	1.93*	−0.010	−64.12***	0.003	3.26***	0.010	35.97***
INVST	0.008	5.52***	−0.001	−3.19***	0.012	7.99***	−0.003	−4.54***
FCF	0.0001	1.76*	0.0001	−0.01	0.0001	1.73*	0.0001	−0.48
ROA	0.003	1.75*	0.004	3.04***	0.003	1.72*	0.008	4.31***
EPS	0.035	1.75*	0.059	0.02	0.072	1.73*	0.063	−0.21
Constant	−1.963	−8.29***	−0.252	−5.33***	−1.003	−5.51***	0.710	6.74***
λ	–	–	−0.029	−4.26***	–	–	−0.264	−4.09***
$\rho_{\varepsilon,\eta}$	–		−0.188		–		−0.877	
σ_{ε}	–		0.154		–		0.301	
No. of obs.	6,784		6,784		6,784		6,784	

Notes:
This table presents the estimated coefficients from the following regression models:

Model I: $\mathrm{CP}_i^* = \alpha + \mathbf{Z}_i\gamma + \beta_1\mathrm{SIZE}_i + \beta_2\mathrm{DEBT}_i + \beta_3\mathrm{INVST}_i + \beta_4\mathrm{FCF}_i + \beta_5\mathrm{ROA}_i + \beta_6\mathrm{EPS}_i + \eta_i$

$\mathrm{CP}_i = 1 \quad if\ \tilde{\mathrm{CP}}_i^* > 0; \mathrm{CP}_i = 0\ if\ CP_i^* \le 0;$

Model II: $Q_i = \alpha + \delta\hat{CP}_i + \beta_1\mathrm{SIZE}_i + \beta_2\mathrm{DEBT}_i + \beta_3\mathrm{INVST}_i + \beta_4\mathrm{FCF}_i + \beta_5\mathrm{ROA}_i + \beta_6\mathrm{EPS}_i + \sigma_{\varepsilon,\eta}\lambda_i + \varepsilon_i.$

[a] In the first-stage disclosure equation (Model I), the dependent variable is comprehensive disclosure (CP). If the firm voluntarily provides comprehensive disclosure not only on the level of compensation paid to its executives, but also on the level of compensation paid to its directors, then the compensation disclosure variable, CP, takes the value of 1, otherwise 0. The instrumental variables (**Z**) include the proportion of shares owned by domestic trust funds (%DTF), the proportion of shares owned by outside funds (%OF), the proportion of shares owned by managers (%MNG), the proportion of shares owned by controlling directors (%CD), the critical controlling shareholding (%CC), the proportion of shares owned by family funds (%FF), the proportion of shares owned by family unlisted corporations (%FU), the proportion of directors appointed by outside listed corporations (OCD), the proportion of supervisors appointed by outside listed corporations (OCS), the proportion of supervisors appointed by outside funds (OFS), the proportion of directors appointed by family unlisted corporations (FCD) and the size of the board (BSIZE).
[b] In the second-stage valuation equation (Model II), the dependent variable is the Tobin's Q (Q), which is defined as the sum of the firm's market capitalization and the book value of debt, divided by the book value of total assets. The coefficient on λ examines the effect of self-selection bias; $\rho_{\varepsilon,\eta}$ is the correlation of the error terms in the disclosure and valuation equation; σ_{ε} is the standard deviation of the error term in the second-stage equation. The control variables come under two categories of firm characteristics and profitability. Firm characteristics include firm size (SIZE) measured by the natural log of total assets; debt ratio (DEBT) measured by the ratio of total liabilities to total assets; proprietary ratio (INVST) measured by the ratio of total investment to total assets; and free cash flow (FCF) measured by the ratio of operating cash flow to total assets. The profitability includes return on assets (ROA) and earnings per share (EPS).
[c] *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level.

The data on non-comprehensive disclosure is further decomposed into 'medium' or 'minimal' disclosure. The term 'minimal disclosure' indicates that firms comply only with the mandatory requirements for disclosure of information on compensation in their annual reports (second column of Table 1). Therefore, any additional requirement for mandatory disclosure during the regulatory changes in the subsequent years is included within our measurement of minimal disclosure. However, the regulatory changes on voluntary disclosure are not adopted by minimal disclosure firms. 'Medium disclosure' indicates that by adopting the regulatory changes, the firms are providing compensation information on all of the mandatory requirements whilst also complying with some elements of voluntary disclosure, where such level of transparency is in excess of the mandatory disclosure, but falls short of comprehensive disclosure.

We further quantify the two types of non-comprehensive disclosure as our index variables (Table 2, Panel A). If the firm is found to be voluntarily providing 'medium disclosure' not only on the compensation paid to its executives, but also on the compensation paid to its directors, then MD takes the value of 1, otherwise 0. If the firm discloses medium-level information only on executive compensation, then EMD takes the value of 1, otherwise 0. Similarly, if the firm discloses medium-level information only on director compensation, then DMD takes the value of 1, otherwise 0. Finally, if the firm provides only 'minimal disclosure' on the compensation paid to both its executives and directors, then MN takes the value of 1, otherwise 0. If the firm discloses minimal-level information only on executive (director) compensation, then EMN (DMN) takes the value of 1, otherwise 0.

Given that the disclosure of inappropriate incentives may lead to potential outrage, although executives will choose to provide non-comprehensive disclosure of executive compensation, it will nevertheless be in excess of the mandatory requirements (ECP = 0; EMD = 1; EMN = 0). In such cases (CP = 0; MD = 1; MN = 0),[28] outsiders may presume that the firm is faced with severe agency problems.[29] A substantial reduction in the proportion of firms providing minimal disclosure, from 11.83% in 1996 to 0.89% in 2008, is revealed in Panel B of Table 2. We surmise that this is because the gradual enforcement and changing requirements are pushing these listed companies towards higher levels of transparency in their compensation disclosure.

Given the growth in newly-listed firms, there has also been corresponding growth in the proportion of firms providing medium disclosure, from 28.63% in 1996 to 83.29% in 2008. Pagano et al. (1998) note that firms going public will be burdened with the additional costs of auditing brought about by disclosure requirements. Wagenhofer (1990) also argues that firms will prefer to provide only partial disclosure because they can then decide to disclose only that information which is of a favorable nature. Although Cooper and Grinder (1996), Guo et al. (2004) and Cerbioni and Parbonetti (2007) suggest that IPO firms have less discretion in their disclosure content, this is not the case for the voluntary disclosure of information on compensation in Taiwan. Therefore, the tendency for increasing numbers of firms in Taiwan to provide medium

28 Regarding the measurement of comprehensive disclosure, DMD and EMD are subsets of MD, that is MD = 1 only if DMD and EMD are simultaneously equal to 1. The coding system is also applied to the minimal disclosures (MN, DMN and EMN).

29 Comprehensive disclosure on the compensation paid to managing directors provides greater insights into the extent to which the firms are faced with agency conflicts. From the detailed information provided in *Table D*, for example, outsiders can gain an understanding that a powerful managing director may attempt to influence the compensation committee to rearrange his compensation contract to include several inappropriate incentives and self-serving benefits.

disclosure is consistent with the argument pursued in both Easley and O'hara (2004) and Hribar (2004), that if such disclosure is not compulsory, then IPO firms have lower levels of transparency and higher information asymmetry.

Including MD as an additional variable in regression (1), we go on to examine whether medium levels of disclosure of information on the compensation paid to directors and executives, as compared to only minimal disclosure, can help to create additional market value. The act of camouflaging information on compensation provides a signal that the firm is burdened with potential agency conflicts and rent-seeking behavior. We therefore expect to find that such opaque compensation disclosure will have neutral effects on market value.

Model I of Table 7 reveals that the effects of medium disclosure are insignificant, essentially because non-comprehensive disclosure provides a signal that full disclosure may be harmful to the personal benefits of directors and executives. Outsiders can therefore make reasonable assumptions as to the motives behind such non-comprehensive disclosure. Furthermore, external speculation on such camouflaging activities may affect rent bargaining by directors and executives (Verrecchia, 1983); therefore, a medium level of disclosure will be of little help in terms of increasing shareholder wealth (Lo, 2003).

Our analysis of the industry sub-sample in Model II of Table 7 shows that the MD coefficient is insignificant, which suggests that for those electronics firms which tend to use large proportions of stock bonuses, the higher level of transparency provided in their disclosure of compensation information is of no help whatsoever to the creation of firm value. Conversely, the MD coefficient in Model III of Table 7 is significantly positive, which suggests that for those non-electronics firms which are characterized as having relatively weak governance structures, a higher market value can still be created when non-comprehensive information is disclosed to satisfy the needs of outsiders, irrespective of the level of transparency (Doidge et al., 2004).

The insignificant results of the Ohlson model, MD in Model IV of Table 7, reveal that after controlling for comprehensive disclosure, the book value of equity and earnings, firms voluntarily adopting medium levels of transparency in their disclosure of information on compensation do not have higher market value.[30] Nevertheless, the slightly significant result of MD in Model V of Table 7 suggests that with a larger number of shares outstanding, outside investors will believe that non-comprehensive disclosure is being provided, further presuming poor governance mechanisms in the firm. Therefore, medium levels of disclosure may even be injurious to market value.

Our empirical evidence provides support for the argument of a greater need for comprehensive disclosure of information on compensation (Muslu, 2009; and Morse et al., 2010). The evidence on medium levels of disclosure suggests that although information is provided in excess of the mandatory requirement, the camouflaging of compensation contracts may also provide a signal of actions which may be detrimental to shareholder wealth. It therefore seems that only comprehensive disclosure provides a signal of better governance mechanisms, leading to positive effects on market value. Nevertheless, improvements in compensation disclosure by non-electronics firms, generally regarded as having weaker governance mechanisms, also appear to bring higher market value, regardless of the level of transparency. Our findings of the significant (insignificant) effects of comprehensive (medium)

30 We also examine the Ohlson model with the number of shares outstanding and book value of capital as the deflators, with the results of such analysis also suggesting that medium levels of disclosure are of little help in terms of creating market value.

Table 7

The Effects of Medium Level of Compensation Disclosure on Firm Value

	OLS						*Ohlson Model*			
	Model I Full Sample		*Model II Electronics Firms as Sub-Sample*		*Model III Non-Electronics Firms as Sub-Sample*		*Model IV Sales as Deflator*		*Model V Shares Outstanding as Deflator*	
	Coefficient	*t-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*
CP	0.004	3.52***	0.016	3.88***	0.009	2.67***	0.001	3.33***	0.001	3.70***
MD	−0.025	−2.01	−0.006	−0.32	0.023	2.67***	0.001	0.11	−0.001	−1.89*
SIZE	−0.016	−8.45***	−0.020	−5.92***	−0.015	−6.19***	–	–	–	–
DEBT	−0.010	−71.84***	−0.011	−36.25***	−0.010	−61.74***	–	–	–	–
INVST	0.054	3.48***	0.037	1.75*	0.004	3.25***	–	–	–	–
FCF	0.0001	0.44	0.0001	4.71***	0.0001	0.09	–	–	–	–
ROA	0.0001	3.00***	0.002	4.72***	0.0001	1.07	–	–	–	–
EPS	0.060	0.42	0.059	4.71***	0.060	0.04	–	–	–	–
BV	–	–	–	–	–	–	0.638	265.83***	0.312	59.38***
AER[a]	–	–	–	–	–	–	0.015	254.05***	0.008	26.88***
Constant	2.888	9.38***	0.278	4.98***	0.273	7.42***	−0.001	−0.44	0.002	0.70**
Adj. R^2	0.428		0.364		0.489		0.944		0.670	
MSE	0.202		0.234		0.178		0.052		0.073	
No. of Obs.	6,784		2,374		4,410		6,784		6,784	

Notes:
This table presents the estimated coefficients from the following regression models:

$$\text{Model I, II and III: } Q_i = \alpha_1^1 + \delta_1 \text{CP}_i + \delta_2 \text{MD}_i + \beta_1^1 \text{SIZE}_i + \beta_2^1 \text{DEBT}_i + \beta_3^1 \text{INVST}_i + \beta_4^1 \text{FCF}_i + \beta_5^1 \text{ROA}_i + \beta_6^4 \text{EPS}_i + \varepsilon_i^1$$

$$\text{Model IV and V: } \text{MV}_i = \alpha_0^2 + \alpha_1^2 \text{BV}_i + \alpha_2^2 \text{AER}_i^a + \alpha_3^2 v_i + \varepsilon_i^2.$$

[a] The dependent variable in Models I, II and III is the Tobin's Q (Q), which is defined as the sum of the firm's market capitalization and the book value of debt, divided by the book value of total assets. If the firm voluntarily provides comprehensive disclosure not only on the level of compensation paid to its executives, but also on the level of compensation paid to its directors, then the compensation disclosure variable, CP, takes the value of 1, otherwise 0. If the firm is found to voluntarily provide medium disclosure not only on the compensation paid to its executives, but also on the compensation paid to its directors, then MD takes the value of 1, otherwise 0. The control variables come under two categories of firm characteristics and profitability. Firm characteristics include firm size (SIZE) measured by the natural log of total assets; debt ratio (DEBT) measured by the ratio of total liabilities to total assets; proprietary ratio (INVST) measured by the ratio of total investment to total assets; and free cash flow (FCF) measured by the ratio of operating cash flow to total assets. The profitability includes return on assets (ROA) and earnings per share (EPS). The dependent variable in Models IV and V is the market value of equity for firm i (MV) on the last date of the annual report announcements; BV_i is the book value of equity; abnormal earnings, AER_i^a, is given by $\text{AER}_i^a \equiv \textit{Earnings}_i - r_f \cdot \text{BV}_i$, where r_f is the one-period risk-free rate of return; v_i is other value-relevant information, addressing the comprehensive disclosure (CP) and medium disclosure (MD).
[b] *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level.

disclosure are in line with the argument that comprehensive disclosure is the only level of transparency which can enhance governance mechanisms. The evidence may well be applicable to other emerging markets currently going through disclosure policy reforms, particularly those in which the authorities have refrained from making compensation disclosure compulsory.

5. CONCLUSIONS

We set out in this study to examine the market value of comprehensive disclosure of information on compensation using data on Taiwanese firms covering the years 1996 to 2008, a period during which the authorities in Taiwan provided firms with discretion with regard to the level of transparency provided in their compensation disclosure. Our results highlight the significantly positive effect of comprehensive disclosure on the market value of a firm, particularly for those firms with relatively weak governance mechanisms. However, comprehensive disclosure provided by firms which use large proportions of stock bonuses does not provide such higher market valuation. Using the Heckman model to control for potential problems of endogeneity and self-selection bias, we further find that firms with greater board independence tend to provide comprehensive disclosure of information on compensation, which thereby leads to significantly higher market value. We also find that compensation disclosure involving only medium levels of transparency is of very little help to the creation of market value.

Our empirical results contribute to this line of research by providing a much broader understanding of compensation disclosure. The main findings suggesting that comprehensive disclosure of information on compensation provides a signal that the firm has fewer agency problems and a better governance structure, whilst non-comprehensive disclosure is perceived as signaling the camouflaging of excess compensation and bargaining behavior. Furthermore, the significant effects of disclosure on the compensation received by directors indicate that investors are concerned not only with executive compensation, but also with whether the compensation paid to directors provides appropriate incentives capable of enhancing the functions of the board. Taken together, the evidence provides general support for the suggestion within the extant literature on corporate governance of the need for overall improvements in compensation disclosure.

Our evidence may have several applications for other emerging markets. Since most firms seem to prefer partial disclosure, and since those firms with better governance structures are more likely to voluntarily provide comprehensive disclosure, this provides the authorities in other emerging markets with strong motivation to allow firms some discretion in their voluntary reporting of disclosure information. Our sub-sample analysis reveals poor current levels of disclosure on specific compensation information provided by firms, particularly information which investors need to take into account; thus, the market value of compensation disclosure is no longer apparent. The disclosure requirement should therefore be enhanced by enlarging the disclosure items, or the narrative discussion, and by developing more effective enforcement policies. The results of our selection model indicate that the adoption of comprehensive disclosure is non-random. Therefore, improving board independence and overall governance mechanisms can help to increase the willingness amongst firms to provide voluntary disclosure. Whilst voluntary disclosure is desirable, comprehensive disclosure is more likely to be effectively provided under sound disclosure practices, with the application of gradual pressure.

APPENDIX

Compensation Disclosure Tables

Panel A: Detailed Information on Directors' (Executives') Compensation[a]

Position and Name of Each Director and Executive	*Directors' Remuneration*										*Employed Directors' Remuneration*											
	Fixed Remuneration (a)		*Pension (b)*		*Appropriation of Earnings (c)*		*Business Entitlement (d)*		*Subtotal (a + b c + d)*		*Remuneration, Bonuses and Allowances (e)*		*Pension (f)*		*Earnings Appropriation (g) C*		*S*		*Share Warrants*		*Total (a + b + c + d + e + f + g) ÷ Net Income*		*Remuneration from Other Invested Companies and/or Subsidiaries*
	PC	*CS*	*PC*	*CS*	*PC*	*CS*	*PC*	*CS*	*PC*	*CS*	*PC*	*CS*	*PC*	*CS*	*PC*	*CS*	*PC*	*CS*	*PC*	*CS*	*PC*	*CS*	
Chairman																							
Directors[b]																							
CEO																							
Senior Managers																							
N																							

Panel B: Levels of Directors' (Executives') Compensation [a]

Level of Compensation	*Levels of Directors' Compensation*				*Levels of Executives' Compensation*	
	PC (a + b + c + d)	*CS (a + b + c + d)*	*PC (a + b + c + d + e + f + g)*	*CS (a + b + c + d + e + f + g)*	*PC*	*CS*
Below NT$ 2,000,000						
NT$ 2,000,000~5,000,000						
N						

Notes:

[a] Within the gradual process of compensation disclosure policy reforms, there are mandatory requirements for firms to comply with the relevant regulations by disclosing the necessary information once these regulations have been revised. Conversely, voluntary disclosure provides discretions for firms to voluntarily disclose additional information, in excess of the mandatory disclosure requirements, in the tabular forms proposed by the authority. The tables provided in this Appendix, and their items, have been revised by the authority several times. These are the latest (2008) versions. PC refers to remuneration from the positioned (stand-alone) company; CS refers to the total remuneration from the consolidated statements of all companies; C refers to cash dividends; and S refers to stock dividends.

[b] In accordance with Article 196 of the Company Act, directors are defined as all board members, including standing directors, inside directors, independent (non-executive/supervisory/outside) directors and managing directors.

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