

The Relationship between Governance and Earnings Management: An Advanced Empirical Study of Non-profit Hospitals in Taiwan

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Abstract

In response to criticism regarding the financial information of nonprofit proprietary hospitals in Taiwan, the Taiwan Department of Health (February 2006) established standards for the financial reports of medical-juridical persons. These guidelines stipulate that such reports must be audited by a certified public accountant to verify that the reported earnings are representative. However, nonprofit proprietary hospitals continue to transfer hospital profits to individuals or corporate groups by using diverse measures, indicating that earnings figures may not reflect operational performance. Therefore, this study investigated nonprofit proprietary hospitals in Taiwan and applied the logistic regression method to examine earnings management (EM) behavior. The empirical results showed that the governance index exhibited a negative correlation with discretionary accruals of bad debt, discretionary accruals of the Jones model, and discretionary accruals of non-operating or non-revenue-generating activity. Nevertheless, discretionary items play an active role in EM. Discretionary accruals of non-operating or non-revenue-generating activity possessed relatively strong explanatory power.

Keywords: Discretionary accruals, Governance, Earnings management (EM), Hospitals

1. Introduction

Healy and Wahlen (1999) defined earnings management (EM) as managers exercising judgment when reporting finances and structuring transactions to alter financial reports either to mislead stakeholders regarding the company's underlying economic performance or to influence contractual outcomes that depend on the reported accounting numbers. The goal of corporate governance (CG) is to ensure the accountability of managers through mechanisms aimed at reducing the principal-agent problem. In recent years, financial reporting has attracted substantial attention (Kang and Kim, 2011). Most previous studies have addressed the relationship between EM and specific CG variables, such as social ties between the chief financial officer (CFO) or chief executive officer (CEO) and the board (Krishnan, Raman, Yang and Yu, 2011), CEO duality (Liu, 2012; Gulzar and Wang, 2011; Kouki, Elkhaldi, Atri and Souid, 2011; Uwalomwa, Daramola Sunday and Anjolaoluwa, 2014; Chi, Hung, Cheng and Lieu, 2015), tenures of CEOs (Di Meo, 2014), auditor industry specialization (Inaam, Khmoussi, and Fatma, 2012), Big Four auditors (Inaam, Khmoussi, and Fatma, 2012), auditor tenure (Lin and Hwang, 2010; Mikoa and Kamardin, 2015), auditor size (Lin and Hwang, 2010; Mikoa and Kamardin, 2015), auditor specialization (Lin and Hwang, 2010), audit committee independence (Lin and Hwang, 2010; Mikoa and Kamardin, 2015; Fodio, Ibikunl and Oba, 2013; Mansor, Che-Ahmad, Ahmad-Zaluki and Osman, 2013), and audit committee size (Fodio, Ibikunl and Oba, 2013; Mansor, Che-Ahmad, Ahmad-Zaluki and Osman, 2013; Mikoa and Kamardin, 2015). In addition to these topics, board of director independence (Lin and Hwang, 2010; Liu, 2012; Rezaei & Roshani, 2012; Chi, Hung, Cheng and Lieu, 2015; Uwalomwa, Daramola Sunday and Anjolaoluwa, 2014), board chair roles (Charfeddine, Riahi, and Omri, 2013), board size (Uwalomwa, Daramola Sunday and Anjolaoluwa, 2014), board meetings (Gulzar and Wang, 2011), women directors (Gulzar and Wang, 2011) are also critical factors influencing EM. Additionally, institutional holdings (Anabila and Whang, 2014), family firms (Chi, Hung, Cheng and Lieu, 2015), managerial ownership (Liu, 2012), concentrated ownership (Gulzar and Wang, 2011), managers as members of the nominating committee (Kouki, Elkhaldi, Atri and Souid, 2011), and managerial propriety (Charfeddine, Riahi, and Omri, 2013) have an effect on EM.

Consequently, the focus of this study was to investigate the relationship between EM and CG by using a single index with numerous internal and external mechanisms. An alternative approach for examining the relationship between CG

and EM involves employing CG scores (or a corporate governance index). As previously noted (Bekiris and Doukakis, 2011; Kang and Kim, 2012; Shen and Chih, 2007; Jiang, Lee and Anandarajan, 2008), theoretical or empirical research conducted in this field has been limited.

By definition, not-for-profit (NFP) hospitals have different objectives, governance approaches, and managerial incentives compared with for-profit (FP) hospitals. Thus, financial reporters adopt varying predictions and strategies, which include performing credit evaluations (Leone and Van Horn, 2005) and managerial assessments (Leone and Van Horn, 2005); making donation decisions (Frank, Salkever and Mitchell, 1990; Leone and Van Horn, 2005; Tan, 2011); participating in contract negotiations (Leone and Lawrence, 2005); and determining tax statuses (Krishnan and Yetman, 2011; Leone and Van Horn, 2005; Eldenburg, Gunny, Hee, and Soderstrom, 2011; Tan, 2011), the level of governmental supervision (Tan, 2011), regulatory scrutiny (Eldenburg, Gunny, Hee, and Soderstrom, 2011; Eldenburg, Hermalin, Weisbach, and Wosinska, 2004), and obligations to stakeholders (Eldenburg, Gunny, Hee, and Soderstrom, 2011). Additionally, many NFP hospitals are known to adjust discretionary accruals (Leone and Van Horn, 2005; Ballantine, Forker, and Greenwood, 2007; Eldenburg, Hermalin, Weisbach, and Wosinska, 2004; Tan, 2011) and manipulate real activities (Eldenburg, Gunny, Hee, and Soderstrom, 2011; Hoerger, 1991; Leone and Van Horn, 2005; Krishnan and Yetman, 2011). NFP hospitals have also been reported to implement accounting adjustments to prevent minor losses (Ballantine, Forker, and Greenwood, 2007; Leone and Van Horn, 2005; Frank, Salkever and Mitchell, 1990; Hoerger, 1991; Leone and Van Horn, 2005; Eldenburg, Gunny, Hee, and Soderstrom, 2011; Eldenburg, Hermalin, Weisbach, and Wosinska, 2004; Tan, 2011), break even (Ballantine, Forker, and Greenwood, 2007), near zero (Ballantine et al. 2008; Chang & Tuckman, 1990), reduce earnings (Leone and Van Horn, 2005; Eldenburg, Hermalin, Weisbach, and Wosinska, 2004), and prevent large positive net incomes (Eldenburg, Gunny, Hee, and Soderstrom, 2011). A relevant concern in NFP hospital financial reporting is the extent to which managers manipulate reported earnings. Accrual and real activity-based measures have been widely employed in EM tests (Leone and Van Horn, 2005; Tan, 2011; Ballantine, Forker, and Greenwood, 2007; Eldenburg, Gunny, Hee, and Soderstrom, 2011).

Hospitals in Taiwan can be divided into three categories according to ownership: public hospitals, proprietary hospitals, and private hospitals. Public hospitals, similar to proprietary hospitals, operate without the aim of generating a profit. By contrast, private hospitals operate primarily to obtain a profit (Ching, 2007). According to Taiwanese medical law, public hospitals are managed by the government, public enterprises, or universities; nonprofit hospitals are established by private universities or through donations for the purposes of charity or medical research; and proprietary hospitals, or FP hospitals, are owned by physicians. However, investor-owned corporations are prohibited from owning hospitals in Taiwan. Regardless of this institutional difference, FP hospitals in Taiwan are distinguished from nonprofit hospitals by various legal and economic aspects, similar to related distinctions established in the United States. First, FP hospitals are managed and controlled by physicians, who own the organization and its profits. By comparison, NFP hospitals are not owned; instead, they adopt self-perpetuating boards granted control rights. Therefore, NFP hospitals are legally forbidden to distribute their net earnings, if any, among the board of directors, administrators, doctors, or other parties. Second, owners of FP hospitals must pay personal income tax based on their net earnings, whereas NFP hospitals incur only corporate income tax if less than 80% of the net earnings are not spent on purposes specified in the charter. Nevertheless, in such situations, the personal income tax rate is substantially higher than the corporate income tax rate. Third, NFP hospitals are exempt from land and property taxes. Finally, NFP hospitals are entitled to receive charitable contributions. Most NFP hospitals are initially established through substantial charitable donations, whereas most FP hospitals are established through non-tax-exempt personal debt (Huang and Liu, 2011).

CG has been valued in recent years. The operational goals, policies, and regulations of NFP organizations differ from those of other organizations. Because the objective of NFP organizations is to promote social welfare (i.e., fund-raising and social responsibility), information asymmetry exists between the donors (i.e., the promoters) and the board of directors (i.e., the managers), and the level of transparency and correctness of financial reports affects the donors and recipients. Thus, employees should be attentive to whether managers obtain private gains. For domestic NFP hospitals, financial information must be disclosed; however, competent authorities are not required to disclose internal governance mechanisms. Furthermore, domestic NFP hospitals are generally profitable; thus, the quality of governance mechanisms influences hospital development. Huang and Liu (2011) were the first to examine the governance factors and EM of domestic NFP hospitals. However, because they employed a single index in their measurements, they provided no comprehensive overview. In this study, we sought to contribute to the related literature by adopting a broad scope of indices (Bekiris & Doukakis, 2011) to measure the relevant aspects of governance factors. We used a logistic model to identify the governance index (GI) that influences EM in NFP hospitals in Taiwan. The remainder of this paper is organized as follows: Section 2 provides a brief review of related literature; Section 3 details the research design, sample selection procedures, and development of a model for

estimating earnings management; Section 4 presents the empirical findings; and, finally, Section 5 offers the research summary and conclusion.

2. Literature Review

Campa and Donnelly (2014) showed that firm-level governance has a greater effect on EM. Di Meo (2014) showed that the association between internal CG and EM suggests that strong CG is able to reduce accounting manipulation. Mansor, Che-Ahmad, Ahmad-Zaluki, and Osman (2013) supported the claim that CG mechanisms are able to overcome EM activities.

In addition, Bekiris and Doukakis (2011) examined the relationship between CG and accruals EM by using a corporate GI comprising 55 CG measures. The results showed that an inverse relationship exists between CG and EM, and that CG provisions may constrain the inclination of managers to manage earnings, thereby increasing the credibility of financial statements. Kang and Kim (2012) reported that EM is both significantly and negatively influenced by CG structure (corporate GI). Shen and Chih (2007) employed the corporate GI established by Credit Lyonnais Security Asia and concluded that firms exhibiting weak CG tend to conduct effective EM. Jiang, Lee, and Anandarajan (2008) adopted Gov-Score and determined that higher levels of CG are associated with lower absolute discretionary accruals and higher earnings quality.

H1: Higher levels of governance are associated with lower accruals and EM.

3. Methodology

The sample for this study was obtained from the Taiwan Department of Health and 43 NFP proprietary hospitals between 2005 and 2011 (sample size = 301). This study adopted logistic regression and employed a logistic model to analyze the study’s data variables and research model, as described in the remainder of this section.

3.1 Dependent variable: Discretionary Accruals (DA_{it})

$$\frac{\Delta BADDEBT_{it}}{TA_{it-1}} = \frac{\beta_{0t}}{TA_{it-1}} + \frac{\beta_{1t} \Delta NETREV_{it}}{TA_{it-1}} + \frac{\beta_{2t} \Delta MEDCARE_{it}}{TA_{it-1}} + \frac{\beta_{3t} \Delta MEDCAID_{it}}{TA_{it-1}} + \varepsilon_{it} \quad (1) \text{ (Leone and Van Horn, 2005)}$$

$$\frac{ACC_{it}}{TA_{it-1}} = \frac{\beta_{0t}}{TA_{it-1}} + \frac{\beta_{1t} \Delta NETREV_{it}}{TA_{it-1}} + \frac{\beta_{2t} PPE_{it}}{TA_{it-1}} + \varepsilon_{it} \quad \dots \dots \dots (2) \text{ (Leone and Van Horn, 2005)}$$

where $\Delta BADDEBT_{it}$ is the change in bad debt expenses for year *t*; $\Delta NETREV_{it}$ is the change in net revenue for year *t*; $\Delta MEDCARE_{it}$ is the change in Medicare revenue (collected by hospitals through national medical insurance) for year *t*; $\Delta MEDCAID_{it}$ is the change in Medicaid revenue for year *t*; ACC_{it} is the total accruals calculated as the change in noncash current assets minus the change in current liabilities for year *t-1* to year *t* and minus the depreciation expenses for year *t*; PPE_{it} is the net property, plants, and equipment at the end of year *t*; and TA_{it-1} is the total assets in year *t-1*.

$$\frac{ACC_{it}}{TA_{it-1}} = \frac{\beta_0}{TA_{it-1}} + \beta_1 \frac{\Delta SALES_{it} - \Delta AR_{it}}{TA_{it-1}} + \beta_2 \frac{PPE_{it}}{TA_{it-1}} + \varepsilon_{it} \quad \dots \dots \dots (3) \text{ (Tan, 2011)}$$

where ACC_{it} is the continuing operating net profit (medical net profit) minus the cash flow from operations for year *t*; $\Delta SALES_{it}$ is the change in medical revenue for year *t*; ΔAR_{it} is the change in account receivables for year *t*; PPE_{it} is the gross fixed assets for year *t*; and TA_{it-1} is total assets for year *t-1*.

$$\frac{\Delta WC_{it}}{TA_{it-1}} = \frac{\beta_0}{TA_{it-1}} + \beta_1 \frac{CFO_{it-1}}{TA_{it-1}} + \beta_2 \frac{CFO_{it}}{TA_{it-1}} + \beta_3 \frac{CFO_{it+1}}{TA_{it-1}} + \beta_4 \frac{\Delta REV_{it}}{TA_{it-1}} + \beta_5 \frac{PPE_{it}}{TA_{it-1}} + \varepsilon_{it} \quad \dots \dots \dots (4)$$

(Ballantine, Forker, & Greenwood, 2007)

where ΔWC_{it} is the change in working capital accruals is the change in current non-cash assets minus the change in

current liabilities for year t ; CFO_{it-1} is the cash flow from operations for year $t-1$; CFO_{it} is the cash flow from operations for year t ; CFO_{it+1} is the cash flow from operations for year $t+1$; ΔREV_{it} is the change in medical revenue for year t ; and PPE_{it} is the net fixed assets for year t .

$$\frac{\Delta EXPEND_{it}}{ASSET_{it}} = \beta_0 + \beta_1 DECREASE_{it} + \beta_2 INCREASE_{it} + \beta_3 NOPRED_{it} + \beta_4 ASSET_{it} + \beta_5 \frac{\Delta SALES_{it}}{ASSET_{it}} + \varepsilon_{it} \dots \dots \dots (5)$$

(Eldenburg, Gunny, Hee & Soderstrom, 2011)

$$GAIN_{it} = \beta_0 + \beta_1 BELOWZERO_{it} + \beta_2 ABOVEZERO_{it} + \beta_3 ASSET_{it} + \beta_4 \Delta SALES_{it} + \beta_5 PPE_{it-1} + \varepsilon_{it} \dots \dots \dots (6)$$

(Eldenburg, Gunny, Hee & Soderstrom, 2011)

where $\Delta EXPEND_{it}$ is the change in non-operating or non-revenue-generating activity expenditure for $t-1$ to t ; $DECREASE_{it}$ is 1 if pre-management income and total assets are within or above the benchmark range [income/total assets (0,0.04)] for year t , and 0 otherwise; $INCREASE_{it}$ is 1 if pre-management (Eldenburg, Gunny, Hee & Soderstrom, 2011) income and total assets exceed the benchmark range [income/total assets (0,0.04)] for year t , and 0 otherwise; $NOPRED_{it}$ is 1 if pre-management (Eldenburg, Gunny, Hee & Soderstrom, 2011) income and total assets are below the benchmark range [income/total assets (0,0.04)] for year t , and 0 otherwise; $ASSET_{it}$ is the log of the total assets for year t ; $\Delta SALES_{it}$ is the change in medical revenue from $t-1$ to t ; $GAIN_{it}$ is 1 if a hospital reports a net gain on the sale of property in year t , 0 otherwise; $BELOWZERO_{it}$ is 1 if pre-managed (Eldenburg, Gunny, Hee & Soderstrom, 2011) income and total assets are to the left of the benchmark range (income/total assets < 0.0) for year t , 0 otherwise; $ABOVEZERO_{it}$ is 1 if pre-managed (Eldenburg, Gunny, Hee & Soderstrom, 2011) income and total assets are to the right of the benchmark range (income/total assets \geq 0.04) for year t , and 0 otherwise; and PPE_{it-1} is gross property, plants, and equipment for year $t-1$. Discretionary items have been frequently used in previous studies as a proxy for EM, in which the value of ε_{it} for measuring EM has been adopted. Chen, Chen, Lobo, and Wang (2011) indicated that ε_{it} is categorized into two groups: a positive ε_{it} denotes income-increasing, performance-adjusted discretionary items, and a negative ε_{it} denotes income-reducing, performance-adjusted discretionary items. We use 1 if ε_{it} is positive in year t , and 0 otherwise.

3.2 Independent variable: Governance Index (Bekiris & Doukakis, 2011) (GI_{it})

The corporate GI employed in this study comprised 43 measures, which were categorized into four dimensions of CG: a board of directors, audits, remuneration, and transparency (investor rights were excluded because NFP hospitals in Taiwan are private organizations). All variables were binary variables, and 1 point was awarded for the presence of specific variables in each firm; otherwise, no points were awarded. Finally, firms providing no information for a specific variable were documented as missing a measure. Appendix A presents a summary of the measures of governance used to construct the GI in this study.

3.3 Control variables

Leone and Van Horn (2005) emphasized that operating income has a significantly positive relationship with EM. Huang and Liu (2011) reported that debt has a significantly positive relationship with EM and that operating cash flow has a significantly negative relationship with EM. The three control variables employed in this study (operating income, debt, and operating cash flow) are defined as follows: $INCOME_{it-1}$ refers to operating income scaled according to lagged total assets and does not include tax support received by a governmental hospital or extraordinary items at time t ; $DEBT_{it}$ refers to the proportion of debt at time t measured in liabilities divided by assets \times 100%; and OCF_{it} refers to the operating cash flow measured at time t .

4. Results

4.1 Descriptive statistics

Table 1 shows that the discretionary accruals of the modified Jones model (i.e., $DAMJ_{it}$) and discretionary accruals of net gain on property sales (i.e., $DAGSP_{it}$) were negative, whereas discretionary accruals of bad debt (i.e., $DABD_{it}$), discretionary accruals of the Jones model (i.e., DAJ_{it} ; 1991), discretionary accruals of working capital (i.e., $DAWC_{it}$), and discretionary accruals of nonoperating or non-revenue-generating activity (i.e., $DANGA_{it}$) were positive. The results also showed that the discretionary accruals of the modified Jones model and discretionary accruals of net gain on property sales were income-reducing, performance-adjusted discretionary items. The discretionary accruals of bad debt, discretionary accruals of the Jones model (1991), discretionary accruals of working capital, and discretionary accruals of nonoperating or non-revenue-generating activity showed that income increasing adjusted the performance of the discretionary items of NFP hospitals in Taiwan. Furthermore, the GI score was 9.7, disclosure of governance mechanisms was not mandated, and value of the items was low. However, the proportion of debt was 39.69%. These results indicated a stable financial structure.

Table 1. Descriptive statistics (all samples)

	Max	Min	Avg
$DABD_{it}$	0.93793	-0.1292	0.09173
DAJ_{it}	0.86116	-0.2441	0.12279
$DAMJ_{it}$	0.27624	-11.244	-0.2921
$DAWC_{it}$	0.66028	-1.2059	0.003
$DANGA_{it}$	0.06776	-0.0106	0.01188
$DAGSP_{it}$ (ten million)	6.703	-12.745	-8.179
GI_{it}	13	8	9.7
$INCOME_{it-1}$	48.58%	23.75%	29.97%
$DEBT_{it}$	47.82%	33.51%	39.69%
OCF_{it} (ten million)	20.446	0.00	6.193

$DABD_{it}$ represents the discretionary accruals of bad debt at time t by using Model 1; DAJ_{it} represents the discretionary accruals of the Jones model (1991) at time t by using Model 2; $DAMJ_{it}$ represents the discretionary accruals of the modified Jones model at time t by using Model 3; $DAWC_{it}$ represents the discretionary accruals of working capital at time t by using Model 4; $DANGA_{it}$ represents the discretionary accruals of non-operating or non-revenue-generating activity at time t by using Model 5; $DAGSP_{it}$ represents the discretionary accruals of net gain on property sales at time t by using Model 6;

4.2 Empirical test

Table 2 shows that the GI had a significantly negative relationship with discretionary accruals of bad debt, discretionary accruals of the Jones model, and discretionary accruals of non-operating or non-revenue-generating activity. In addition, the results showed that the higher the GI score was, the higher the likelihood that NFP hospitals in Taiwan would adopt discretionary accruals of bad debt, discretionary accruals of the Jones model, and discretionary accruals of non-operating or non-revenue-generating activity as income decreasing, performance-adjusted discretionary items. These results were inconsistent with H1, indicating that information was insufficient without mandatory disclosure of governance mechanisms. Therefore, management authorities with comparatively greater

power (i.e., a higher GI) had greater flexibility to manipulate earnings. The lagged operating income had a significantly positive relationship with the discretionary accruals of the Jones model (1991), discretionary accruals of working capital, discretionary accruals of non-operating or non-revenue-generating activity, and discretionary accruals of net gain on property sales. Furthermore, the more lagged the operating income was, the higher the likelihood that NFR hospitals in Taiwan would adopt discretionary accruals of the Jones model (1991), discretionary accruals of working capital, discretionary accruals of non-operating or non-revenue-generating activity, and discretionary accruals of net gain on property sales as income increasing, performance-adjusted discretionary items. The proportion of debt exhibited a significantly positive relationship with discretionary accruals of the modified Jones model, discretionary accruals of net gain on property sales, discretionary accruals of bad debt, discretionary accruals of the Jones model (1991), discretionary accruals of working capital, and discretionary accruals of non-operating or non-revenue-generating activity. Additionally, the higher the debt was, the higher the likelihood that NFP hospitals in Taiwan would adopt discretionary accruals of the modified Jones model, discretionary accruals of net gain on property sales, discretionary accruals of bad debt, discretionary accruals of the Jones model (1991), discretionary accruals of working capital, and discretionary accruals of non-operating or non-revenue-generating activity as income-increasing performance-adjusted discretionary items. Operating cash flow exhibited a significantly negative relationship with discretionary accruals of bad debt, discretionary accruals of the modified Jones model, discretionary accruals of working capital, discretionary accruals of non-operating or non-revenue-generating activity, and discretionary accruals of net gain on property sales. Similarly, the greater the operating cash flow was, the higher the likelihood that discretionary accruals of bad debt, discretionary accruals of the modified Jones model, discretionary accruals of working capital, discretionary accruals of non-operating or non-revenue-generating activity, and discretionary accruals of net gain on property sales would be adopted as income-reducing, performance-adjusted discretionary items. The variance inflation factors of the variables were all below 10, indicating that the related variables had no collinearity.

According to the Cox and Snell R^2 and Nagelkerke R^2 measures, discretionary accruals of nonoperating or non-revenue-generating activity exhibited comparatively stronger explanatory power (Cox & Snell $R^2 = 46.5\%$, Nagelkerke $R^2 = 47.8\%$), and discretionary accruals of the modified Jones model exhibited weaker explanatory power (Cox & Snell $R^2 = 24.9\%$, Nagelkerke $R^2 = 21.2\%$).

Table 2. Relationship between the GI and earnings management (dependent variable: discretionary accruals)

	$DABD_{it}$	DAJ_{it}	$DAMJ_{it}$	$DAWC_{it}$	$DANGA_{it}$	$DAGSP_{it}$
Intercept	0.617**	-0.268	-0.704**	0.095	0.335**	0.412*
GI_{it}	-0.991***	-1.203***	-0.031	0.049	-0.128*	0.136
$INCOME_{it-1}$	0.084	0.222*	-0.073	0.914***	0.543***	0.797**
$DEBT_{it}$	0.757***	1.341***	0.251**	0.176**	0.483***	0.762***
OCF_{it}	-0.363*	0.136	-0.152*	-0.217**	-0.175*	-0.415***
χ^2	15.605	14.052	12.507	13.399	16.419	14.605
Cox & Snell R^2	0.441	0.320	0.249	0.277	0.465	0.361
Nagelkerke R^2	0.385	0.259	0.212	0.225	0.478	0.303

5. Conclusion

The objective of this study was to determine whether EM is employed by NFP hospitals in Taiwan and to analyze their EM behavior. The samples obtained spanned 2005 to 2011. NFP hospitals have differing goals, governance approaches, and management incentives compared with other hospitals. Additionally, many NFP hospitals are known to adjust discretionary accruals (Leone and Van Horn, 2005; Ballantine, Forker, and Greenwood, 2007); Eldenburg, Hermalin, Weisbach, and Wosinska, 2004; Tan, 2011) and manipulate their activities (Eldenburg, Gunny, Hee, and Soderstrom, 2011; Hoerger, 1991; Leone and Van Horn, 2005; Krishnan and Yetman, 2011) through EM.

Previous studies have indicated that the higher a GI score is, the higher the likelihood is that discretionary accruals of

bad debt, discretionary accruals of the Jones model, discretionary accruals of nonoperating or non-revenue-generating activity are adopted as income-reducing, performance-adjusted discretionary items. NFP hospitals in Taiwan are not required to disclose governance information, which results in inadequate governance mechanisms and allows managers to manipulate earnings easily. Thus, we recommend that the Taiwan Department of Health adopt stricter systems to increase disclosures of internal governance information such as share ownership structures, board backgrounds (e.g., level of education, work experience, and external connections), remuneration systems, audit committees, audit fees, forecasts, external (independent) directors and supervisors, and conference records. Because of the unique conditions of NFP hospitals in Taiwan, their financial reports are often complex. Most NFP hospitals (particularly medical centers or institutionally owned hospitals) exhibit a positive net income, even exceeding that of other industries. Future studies should determine the optimal GI for domestic NFP hospitals by examining how it influences EM behavior (income-increasing performance-adjusted discretionary items or income-reducing, performance-adjusted discretionary items). However, our results also indicate that future studies should investigate the factors that influence EM in other types of hospitals (because different hospital types have varying organizational structures and cultural and industrial characteristics). The results could provide a reference for policy makers interested in promoting legislation to ensure strong governance in Taiwanese NFP hospitals. Future research should also monitor relevant trends and analyze the degree of earnings manipulation to provide comprehensive information regarding EM in NFP hospitals.

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Appendix A Summary of the requirements for each corporate governance measure

Dimension	individual measures corporate governance
Board	<p>Board size is greater than 5 but less than 16</p> <p>Independent, non-executive directors account for more than 50% of the board</p> <p>Split between chairman and CEO roles</p> <p>The chairman is an independent, non-executive director</p> <p>CEO serves on the boards of two or fewer hospitals</p> <p>No former CEO of the hospital serves on the board</p> <p>The hospital has a nomination committee</p> <p>The chairman of the nomination committee is a non executive director or the chairman of the board</p> <p>The majority of the members of the nomination committee are independent non executive directors</p> <p>There are outside advisors available to the board</p> <p>There is a nomination committee charter</p> <p>All directors attended 75% of board meeting or had a valid excuse</p> <p>There is a lead director</p> <p>Outside directors meet without the CEO and disclose the number of times met</p> <p>Governance guidelines are publicly disclosed</p> <p>Code of ethics is publicly disclosed</p>
Remuneration	<p>The hospital has a remuneration committee</p> <p>The members of the remuneration committee are all independent non-executive directors</p> <p>The chairman of the remuneration committee is a non-executive director or the chairman of the board</p> <p>The hospital's annual report contains a statement of the remuneration policy</p> <p>The form of the directors' salaries is disclosed (cash, shares, etc.)</p> <p>Performance-based compensation exists</p> <p>The hospital provides long term incentive plans</p> <p>There is a remuneration committee charter</p>
Audit	<p>The hospital has an audit committee</p> <p>All the members of the audit committee are independent non-executive directors</p> <p>The chairman of the audit committee is a non-executive director</p> <p>The audit committee meets at least three times per year</p> <p>Financial expert. At least one member of the audit committee has recent and relevant experience</p> <p>Audit fees for auditing services are higher than the fees for non-audit services</p> <p>Disclosure of how much the company pays for audit fees to the auditor</p> <p>There is an audit committee charter</p>
Transparency	<p>Detailed disclosure of financial and operating results</p> <p>Disclosure of strategic issues</p> <p>Disclosure of corporate targets and prospects</p> <p>Disclosure of the articles of association</p> <p>Investors and financial analysts are equally informed via the internet and also in English</p> <p>Detailed analysis of any deviation from previously announced earnings targets and strategic goals</p> <p>The annual report includes a forecast of the company's profitability in the next business year</p> <p>Disclosure of its plans for investment in the coming years</p> <p>Disclosure of the ownership structure</p> <p>Disclosure of the share ownership of the executive management staff members</p> <p>Disclosure of the number of shares held by the directors</p>