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The Relationship between Auditor Characteristics and Earnings Management: An Empirical Study on Taiwanese Nonprofit Hospitals

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Abstract

Previous studies have focused on researching earnings management behavior in nonprofit hospitals in the United Kingdom and the United States. However, the operational system and environment of hospitals in Taiwan are substantially different from the cases studied, and therefore cannot be considered equivalent. The objective of this study was to determine whether earnings management is practiced in NFP hospitals in Taiwan and to analyze their earnings management behavior. The ordinary least square method was used to examine the relationships in Taiwan's nonprofit hospitals. Alternative procedures, such as the abnormal bad debt, abnormal non-operating or non-revenue generating activity expenditure, and abnormal net gain on the sale of property models were also developed and tested to measure abnormal real items. Research has indicated that auditor specialization and auditor tenure have a negative relationship with earnings management. The empirical results also showed that the abnormal net gain on the sale of property is ideal for evaluating earnings management in Taiwan's nonprofit hospitals.

Keywords

Taiwan, Nonprofit Organization, Earnings Management, Hospitals

1. Introduction

Non-profit organizations are generally perceived to not have profit maximization as their operational goal because profit is not their critical concern [1]. The goal of non-profit hospitals is also not to create profit, but interested parties or

stakeholders (creditors, communities, responsible authorities, donors, and third-person related parties) use earnings to evaluate hospital performance nonetheless [2]. Thus, managers of non-profit hospitals must consider the organization's financial performance [1].

[3] defined earnings management as managers use of judgment in financial reporting and in structuring transactions to alter financial reports either to mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers. Additionally, many NFP hospitals are known to adjust discretionary accruals [1] [2] [4] [5] [6] and manipulate real activities [2] [6] [7] [8] [9]. NFP hospitals have also been reported to implement accounting adjustments to prevent minor losses [1] [2] [4] [5] [7] [8] [10], break even [4], near zero [11] [12], reduce earnings [2] [5], and prevent large positive net incomes [7]. A relevant concern in NFP hospital financial reporting is the extent to which managers manipulate reported earnings.

Most of non-profit hospitals in Taiwan (especially medical centers or institution-owned Hospitals) have positive net income and even more than other industries [6]. It is a serious puzzle; thus, how can a hospital's real performance be determined? It is a complex problem, especially because a hospital's real performance influences not only the employees but also the creditors, communities, responsible authorities, donors, and related third parties. Moreover, there are several factors for which the Department of Health, Executive Yuan (Taiwan) has established related rules or standards, and corporate factors may influence earnings management (e.g., auditor specialization, and auditor tenure). This paper examines the motives for Taiwan NFP hospitals that engage in earnings management activities with the hope of offering some insights for government. The remainder of the paper is organized as follows. Section 2 presents a brief review of the related literature. Section 3 provides details of the research design and sample selection procedure and develops our alternative model for estimating optimal earnings management. Section 4 presents our empirical findings. Section 5 contains a summary and conclusions.

2. Literature Review and Hypothesis

[13] suggested that auditors with industry expertise are more likely to detect misrepresentations and irregularities than are auditors without industry expertise, especially in the early years of the audit assignment. The link is based on the assumption that industry specialist auditors have industry expertise and have a clear understanding of the client's business. Furthermore, industry specialist auditors who accumulate industry-specific knowledge can improve audit quality, identify and detect errors or misstatements [14], and comply with auditing standards [15]. Therefore, hiring an auditor with industry specialization can help limit earnings management because of the enhanced financial reporting quality [13] [16] [17] [18].

H1: Auditor specialization has a negative correlation with earnings management.

[19] determined longer auditor tenures could lead to friendlier relationships with the management, which might impair auditor independence. [20] indicated two arguments supporting the hypothesized relationship between auditor tenure and financial reporting quality: the "independence effect"—a longer tenure increases the likelihood that personal relationships between auditors and clients develop to a depth sufficient to impair audit independence; and the "familiarity effect"—a longer tenure may induce complacency in the auditor, reducing the likelihood that errors and irregularities are detected. Thus, auditor tenure is associated with a high probability of using earnings management [19] [20].

H2: Auditor tenure has a positive correlation with earnings management.

3. Methodology

The sample for this study was obtained from the Department of Health, Executive Yuan, and NFP hospitals between 2013 and 2017 (sample size = 240). NFP hospitals in Taiwan are classified as being in the following sectors: Medical centers (15 hospitals, 75 samples) and institution-owned hospitals (33 hospitals, 165 samples). This study also adopted the ordinary least squares (OLS) method. An OLS model was employed to analyze the data variables and research model used for this study; the results are described as follows.

3.1. Dependent Variable: Discretionary Items (DI_{it})

$$\frac{\Delta BADDEBT_{it}}{TA_{it-1}} = \beta_{0t} \frac{1}{TA_{it-1}} + \beta_{1t} \frac{\Delta NETREV_{it}}{TA_{it-1}} + \beta_{2t} \frac{\Delta MEDCARE_{it}}{TA_{it-1}} + \beta_{3t} \frac{\Delta MEDCAID_{it}}{TA_{it-1}} + \varepsilon_{it}$$ (1)[1]

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:

$$\frac{\Delta EXPAND_{it}}{ASSET_{it}} = \beta_0 + \beta_1 DECREASE_{it} + \beta_2 INCREASE_{it} + \beta_3 NOPRED_{it} + \beta_4 ASSET_{it} + \beta_5 \frac{\Delta SALES_{it}}{ASSET_{it}} + \varepsilon_{it}$$ (2)[2]

$$GAIN_{it} = \beta_0 + \beta_1 BELOWZERO_{it} + \beta_2 ABOVEZERO_{it} + \beta_3 ASSET_{it} + \beta_4 \Delta SALES_{it} + \beta_5 PPE_{it-1} + \varepsilon_{it}$$ (3)[3]

where $\Delta EXPAND_{it}$ = change in non-operating or non-revenue-generating activity expenditure for $t - 1$ to t; $DECREASE_{it} = 1$ if pre-management income/total assets are within or above the benchmark range (income/total assets

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[1][2].
[2][7].
[3][7].

[0,0.04]) for year t, and 0 otherwise; $INCREASE_{it} = 1$ if pre-management[4] income/total assets exceed the benchmark range (income/total assets [0,0.04]) for year t, and 0 otherwise; $NOPRED_{it}$ = if pre-management[5] income/total assets are below the benchmark range (income/total assets [0,0.04]) for year t, and 0 otherwise; $ASSET_{it}$ = log of the total assets for year t; $\Delta SALES_{it}$ = change in medical revenue from $t - 1$ to t; $GAIN_{it} = 1$ if the hospitals reports a net gain on the sale of property in year t, 0 otherwise; $BELOWZERO_{it} = 1$ if pre-managed[6] income/total assets are to the left of the benchmark range (income/total assets < 0.0) for year t, 0 otherwise; $ABOVEZERO_{it} = 1$ if pre-managed[7] income/total assets are to the left of the benchmark range (income/total assets ≥ 0.04) for year t, 0 otherwise; and PPE_{it-1} = gross property, plants, and equipment for year $t - 1$. Discretionary items have been frequently used in previous studies as a proxy for earnings management, for which the value of ε_{it} for measuring earnings management has been adopted. Where, the absolute value of ε_{it} to measure earnings management were adopted.

3.2. Independent Variable

The study used the regression method. The proxy variables are as follows: AS_{it} is the number of clients the auditor worked for in year t [21][8]; AT_{it} is the number of years an auditor has worked for the same client in year t [19][9].

3.3. Control Variable

The study defines the following proxy variables are as follows. $DEBT_{it}$ is the proportion of debt at time t measured in liabilities divided by assets × 100% [22]; OCF_{it} is operating cash flow measured as at time t [6]; NA_{it} is net asset at time t measured in assets minus liabilities [6].

4. Results

4.1. Descriptive Statistics

According to the descriptive statistics analysis in Table 1, the mean of proportion of debt at 47.32% shows it to be financial conservative. Net assets show that not profit hospitals in Taiwan are 162.55 (U.S. million dollars). Operating cash flows show that non-profit hospitals in Taiwan are profitable and doing well.

4.2. Empirical Test

Tables 2-4 present descriptive statistics for the discretionary item models. We adopted three models to measure abnormal real discretionary items (BD model,

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[4]We begin by calculating net income before spending on non-operating or non-revenue-generating activity [7].
[5]We begin by calculating net income before spending on non-operating or non-revenue-generating activity [7].
[6]We begin by calculating net income before net gain on property sales activity [7].
[7]We begin by calculating net income before net gain on property sales activity [7].
[8]Auditor specialization.
[9]Auditor tenure.

Table 1. Descriptive statistics for variables (US dollars in millions, %, points).

	Max	Min	Average
AS_{it}	3	1	1.8
AT_{it}	6	2	4.2
$DEBT_{it}$	52.68%	42.85%	47.32%
OCF_{it}	25.38	12.66	18.32
NA_{it}	582.35	48.78	162.55
	$N = 240$		

AS_{it} is the number of clients the auditor worked for in year t; AT_{it} is the number of years an auditor has worked for the same client in year t. $DEBT_{it}$ is the proportion of debt at time t measured in liabilities divided by assets ×100%; OCF_{it} is operating cash flow measured as at time t; NA_{it} is net asset at time t measured in assets minus liabilities.

Table 2. Descriptive statistics for the estimated cross section: BD-model.

$$\frac{\Delta BADDEBT_{it}}{TA_{it-1}} = \beta_{0t} \frac{1}{TA_{it-1}} + \beta_{1t} \frac{\Delta NETREV_{it}}{TA_{it-1}} + \beta_{2t} \frac{\Delta MEDCARE_{it}}{TA_{it-1}} + \beta_{3t} \frac{\Delta MEDCAID_{it}}{TA_{it-1}} + \varepsilon_{it}$$

β_{0t}	β_{1t}	β_{2t}	β_{3t}	R^2	F-value
0.317*	0.249***	0.112	−0.189**	0.202	11.652**

*: $p < 0.1$; **: $p < 0.05$; ***: $P < 0.01$.

Table 3. Descriptive statistics for the estimated cross section: NORR-model.

$$\frac{\Delta EXPAND_{it}}{ASSET_{it}} = \beta_0 + \beta_1 DECREASE_{it} + \beta_2 INCREASE_{it} + \beta_3 NOPRED_{it} + \beta_4 ASSET_{it} + \beta_5 \frac{\Delta SALES_{it}}{ASSET_{it}} + \varepsilon_{it}$$

β_{0t}	β_{1t}	β_{2t}	β_{3t}	β_{4t}	β_{5t}	R^2	F-value
0.063	−0.199**	0.287***	0.242***	−0.036	0.128*	0.316	10.64*

*: $p < 0.1$; **: $p < 0.05$; ***: $P < 0.01$.

Table 4. Descriptive statistics for the estimated cross section: NGSP-model.

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

β_{0t}	β_{1t}	β_{2t}	β_{3t}	β_{4t}	β_{5t}	R^2	F-value
0.327***	−0.189	0.321**	0.272**	0.196*	−0.063	0.319	12.2**

*: $p < 0.1$; **: $p < 0.05$; ***: $P < 0.01$.

NORR model, NGSP model). BD model shows that the ΔREV coefficient was positive, which was equivalent to the Jones model. NORR mode shows that the $INCREASE_{it}$ and $NOPRED_{it}$ coefficients were positive. NGSP model shows that the $BELOWZERO_{it}$ coefficients were negative and that the $ABOVEZERO_{it}$ coefficients were positive. [7] showed that the $INCREASE_{it}$ and $NOPRED_{it}$ coefficients were non-significant and the $BELOWZERO_{it}$ coefficient is non-significant and the $ABOVEZERO_{it}$ coefficient is negative. Thus, in comparison to [7], we found that managers in Taiwan's hospitals tend to differ from managers in American hospitals. More importantly, from **Table 4**, it is seen that NGSP model is a more powerful method for explaining the relationships earn-

ings management. It also shows that NGSP model is a better index to explain earnings management for Taiwan NFP hospitals.

The empirical results in Table 5 show that auditor specialization and earnings management had a significant, negative relationship. This indicates that auditors who have a specialist's knowledge of the industry can improve audit quality; therefore, hiring an auditor who is an industry specialist helps limit earnings management. As previous literature in accounting and finance has demonstrated the effectiveness of the auditors in preventing earnings management. We are able to interpret the measures in terms of monitoring intensity. Because these auditors have industry expertise contributes to auditor independence. Besides it, they may focus on these auditors face greater risk of litigation and reputational damage when accruals or real activities earnings management is increased. Therefore, H1 was supported, which is consistent with the findings of [13] [16] [17] [18].

Auditor tenure and earnings management had a significant, negative relationship. This shows that, as auditor tenure increases, the auditor progresses at assessing the risk of material misstatements by gaining experience and improved insight into the client's operations, business strategies, and internal controls over financial reporting. Therefore, the longer the auditor tenure is, the lesser the earnings management behaviors of nonprofit hospitals in Taiwan. Thus, H2 was not supported, which is inconsistent with the findings of [19] and [23]. Table 5 also shows how analyzing the discretionary items of abnormal net gain on the sale of property is a powerful method for explaining earnings management. It also shows that the discretionary items of abnormal net gain on the sale of property accruals is a suitable index for explaining earnings management in Taiwanese NFP hospitals. In addition, the variance inflation factors[10] of variables were smaller than 10 in our logistic model, indicating that the related variables were not collinear.

Table 5. Regression results.

	Dependent variable: discretionary items		
	$DABD_{it}$	$DANGA_{it}$	$DAGSP_{it}$
Intercept	0.228***	0.325***	0.494***
AS_{it}	−0.155***	−0.327***	−0.312***
AT_{it}	−0.317**	−0.286**	−0.119**
$DEBT_{it}$	0.102**	0.158**	0.189***
OCF_{it}	−0.167***	−0.136**	−0.148***
NA_{it}	−0.058	0.062	0.059
Adj-R^2	0.136	0.189	0.217
F-value	21.3395***	28.318***	29.932***

*: $p < 0.1$; **: $p < 0.05$; ***: $P < 0.01$.

[10]The results were omitted to save space.

5. Conclusions

The objective of this study was to determine whether earnings management is employed by NFP hospitals in Taiwan and to analyze their earnings management behavior. The samples obtained spanned 2013 to 2017. This study used the ordinary least square method to examine the relationships in Taiwan's nonprofit hospitals, and also developed and tested alternative procedures, such as the BD, NORR, and NGSP models, to measure abnormal real items. Research has indicated that the longer the auditor tenure and the more specialized the auditor, the lower the likelihood is that the discretionary accruals of bad debt, the discretionary accruals of the net gain on property sales, and the discretionary accruals of non-operating or non-revenue-generating activity are adopted as earnings management. NFP hospitals in Taiwan are not required to disclose governance-related information, which results in inadequate governance mechanisms and allows managers to manipulate earnings easily. Therefore, we recommend that the Department of Health, Executive Yuan adopt stricter systems to increase the disclosure of internal governance information. Moreover, because auditor specialization has a negative relationship with earnings management, we also suggest that the government establish the evaluation of certified public accountants who have audited hospitals. A list of qualified accountants should be provided to nonprofit hospital managers, and the number of hospitals audited by each auditor should be limited to maintain the level of audit quality.

Finally, auditor tenure has a negative relationship with earnings management. Our results did not show that auditors' judgment has been impaired because of independent relationships with Taiwan's nonprofit hospital managers (auditor tenure has a positive relationship with earnings management). Therefore, the government should establish a mandatory auditor rotation rule (according to which auditors are replaced after a certain number of years of auditing the same client) or a dual signer system (in which two auditors are required to sign each financial statement) to prevent impaired audits in the future. The results can provide a reference for policy makers interested in promoting legislation to ensure strong governance in Taiwanese NFP hospitals. The study also suggests that future studies examine the impact factors of earning management in other kinds of hospitals, because different hospitals have different organizational structures or cultural. In addition, other elements such as market competition and the compensation of directors and supervisors must be considered. Subsequent research should keep track of these trends and analyze the degree of earnings manipulation.

Our study has forth main limitations. First, while certain features of our research design mitigate the possibility that our results are driven by endogeneity, it is not possible for us to definitively rule out endogeneity as an alternative explanation of our results. Second, while auditor specialization and auditor tenure are a useful tool in defining in various the auditor characteristics attributes, these variables may not have readily interpretable economic meaning. Third, we

document that firms use real, as well as accrual-based, earnings management methods around non profits hospitals in Taiwan, which were used to measure earnings manipulation, necessitates further research. Fourth, because of limited data availability, the findings cannot be generalized to all of not profit hospitals in Taiwan. These limitations should be kept in mind in interpreting our results.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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