

THE EFFECTS OF FIRM MARKET VALUE ON AUDIT PARTNER TENURE AND FIRM PROFITABILITY

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ABSTRACT

This study investigates the effects audit partner tenure and firm profitability on the market value of the firm. This study extends Ohlson's model by examining audit partner tenure, and the interaction between residual earnings per share and audit partner tenure on firm value. This issue is particularly important in light of regulations requiring audit partner rotation in the United States, Taiwan and other countries. The model is tested using large internationally listed companies in Taiwan. The findings on average do not support audit partner rotation in Taiwan.

JEL: G1; M4

KEYWORDS: Firm's valuation, audit partner tenure, profitability, corporate governance

INTRODUCTION

The current framework for the preparation and presentation of financial statements was first approved by the International Accounting Standards Committee (IASC) in 1989 and was reaffirmed by the newly formed International Accounting Standard Board (IASB) in 2001. The four qualitative characteristics that make financial statement information useful are understandability, relevance, reliability and comparability. Information is relevant if it can be used to make predictions or if it can be used to confirm expectations from the past (Doupnik and Perera, 2007). Although Ball and Brown examine the information content of accounting earnings in capital markets, the relevance of firm value is not only determined by accounting earnings, but also by other information such as book value. Ohlson (1995) proposes the residual income valuation model, in which the firm's market value can be determined by book value, discounted value of expected future abnormal earnings, and other information.

Managers, investors, accountants, and financial service organizations take care to properly identify firm value. The audit assertion is a public trust that is built on independence thereby disclosing any misstatements in a client's audited financing statements. Wallman (1996) investigates how to strengthen the public trust of auditing service and guarantee the quality of accounting information. The U.S.A. enacted the Sarbanes Oxley Act in 2002 in response to the Enron scandal. The act requires mandatory audit partner rotation. The Taiwan Stock Exchange Corporation (TSEC) stipulated financial reports of listed companies will be checked by TSEC staff, when any one audit partner continues to audit the same client five for five years or more after 2004.

The research motivation for this paper is the relationship between audit partner tenure and audit quality (Mautz and Sharaf, 1961; AICPA, 1978; SEC, 1994; Arrunada and Paz-Ares, 1997). Watts and Zimmerman (1986) presented three hypothesis of positive accounting theory including a firm profitability theory. This paper focuses on firm profitability defined as residual earning per share. The paper expands on Ohlson's (1995) valuation model by incorporating audit partner tenure, and the interaction between residual earnings per share and audit partner tenure into the model. The goal is to identify the relationship between market value and audit partner tenure. The research in this paper is first to examine the relationship between firm profitability and auditor tenure. The results show that the relation between market value and audit partner tenure is dependent on firm profitability. The findings on average do not support the concept of legal or professional requirements for audit partner rotation. The next section of this paper describes the literature and hypotheses development, Section 3 describes the research method, Section 4 discusses empirical results, and Section 5 presents the conclusions.

LITERATURE AND HYPOTHESES DEVELOPMENT

As noted by Khurana and Raman (2006), financial reporting credibility reflects an investor's view of financial statements. This credibility focuses on investor decision measures, rather than a preparer view, which focuses on financial statement measures such as discretionary accruals. Prior studies document that investors pay large premiums for "high-quality" earnings because high-quality earnings are viewed as sustainable (Schipper and Vincent, 2003; Teoh and Wong, 1993). Thus, examining the influence of auditor tenure on the pricing of earnings is likely to provide valuable insights into investors' view of the association between audit partner tenure and earnings quality (Ghosh and Moon, 2005). This study uses the firm value to measure audit quality (Titman and Trueman, 1986). The better the audit quality; the more investors rely on companies' accounting information. Also, the better the audit quality, the higher the firm's value. Palepu *et al.* (2008) finds audit quality plays an important role in the analysis of business and financial reports.

The policy of audit partner rotation is already in place in U.S.A. These policies have also been in place in Taiwan. Taiwan provides an excellent venue for examining the effects of audit rotation because prior to 2004 it was not necessary to rotate audit partners in Taiwan, but after 2004, rotation was required. Thus audit quality can be examined under two regimes (Carey and Simnett, 2006).

This study extends the Ohlson (1995) appraisal model by examining audit partner tenure and the interaction between residual earnings per share and audit partner tenure. This study does not predict the influence of audit partner tenure on firm value. Rather, it examines whether the accuracy of firm's value assessment is influenced by audit partner tenure as it relates to firm profitability. This leads to the hypotheses.

Hypothesis 1. The accuracy of a firm's value assessment will be influenced by audit partner tenure as it relates to firm profitability.

Hypothesis 2. The firm's market value will be influenced by audit partner tenure as it relates to firm profitability.

RESEARCH METHOD

This research focuses on companies listed in the Taiwan 50 index since 2002. The study examines data from 2002 and 2003. Due to structural changes in the financial sector in Taiwan, financial industry firms are eliminated from the study. The research sample includes 40 observations in the electronic industry and 34 observations in general industry, coincide with the work of Wang (2009). The source of study data is the databases of the *Taiwan Economic Journal*.

This study predicts that book value per share and residual earning per share have a positive correlation with the market value. The variables are audit partner tenure and the interaction between residual earning per share and audit partner tenure as originally proposed by Ghosh and Moon (2005). Since prior studies, for example, Carey and Simnett (2006), Ghosh and Moon (2005), Burgstahler and Dichev (1997), Watts and Zimmerman (1986) found that control variables can enhance the accuracy of regression model specifications, this study includes the following control variables: Book value per share, age, growth, leverage, and size. The variable definitions and the expected relationship with firm value are identified in Table 1.

This study is based on two models of firm value. Model 1 is a restricted model that does not incorporate the audit tenure variables. Model 2 is an unrestricted model that includes auditor tenure and the interaction between audit tenure and residual earnings per share. The models are estimated as follows:

Model 1: Restricted Model

$$P_t = \beta_0 + \beta_1 BV_t + \beta_2 EPSr_t + \beta_3 BV_{t-1} + \beta_4 Age_t + \beta_5 Growth_t + \beta_6 Leverage_t + \beta_7 Size_t + \varepsilon$$

Model 2 : Unrestricted Model

$$P_t = \beta_0 + \beta_1 BV_t + \beta_2 EPSr_t + \beta_3 Tenure_t + \beta_4 EPSr_t * Tenure_t + \beta_5 BV_{t-1} + \beta_6 Age_t + \beta_7 Growth_t + \beta_8 Leverage_t + \beta_9 Size_t + \varepsilon$$

where, P_t is the market value per share, BV_t the book value per share, $EPSr_t$ is the residual earning per share, Age_t is the amount of time the firm has been listed, $Growth_t$ is the firm's growth, $Leverage_t$ is the firm's debt ratio, $Size_t$ is the firm's size and $Tenure_t$ is the audit partner tenure .

Table 1: The Definition and Expectancy Direction of Research Variables

Research Variables	Code name	Definition	Predicted Sign
Market value per share (Dependent variable)	P_t	Market value of the stock per share at the end of t year	Not suitable
Book value per share	BV_t	Book value of the equity per share at t year	+
Residual earning per share	$EPSr_t$	Residual earning per share for t year $EPSr_t = EPS_t - (\text{Book value of the equity per share at the beginning of t year} \times \text{shareholders' essential rate of return})$	+
Audit partner tenure	Tenure _t	Audit partner tenure at t year How many years of the longer audit partner tenure for same audited client	?
Residual earning per share multiplied by audit partner tenure	$EPSr_t * Tenure_t$	Residual earning per share * audit partner tenure at t year	?
Book value per share at the beginning of t year	BV_{t-1}	Book value of the equity per share at the beginning of t year	+
Length of the firm as listed firm	Age _t	How many years the firm as listed firm at t year	+
Firm's growth	Growth _t	Firm's growth at t year (Market value of the equity + total liabilities) / total assets	+
Firm's debt ratio	Leverage _t	Firm's debt ratio at t year (Total liabilities / Total assets)	?
Firm's size	Size _t	Firm's size at t year Log(market value of equity at the beginning of t year)	?

This table shows the definition of the variables and the relevance of expectation with firm's value.

This study examines the research models' incremental explanatory power from Model 1 to Model 2. and examines whether the accuracy of firm's market value in the capital market is influenced by the interaction between audit partner tenure and firm profitability. The regression analysis is a nested model so the F test for the unrestricted model (Model 2) and restricted model (Model 1) are compared (Greene, 2008; Wooldridge, 2006). This study examines whether a firm's market value is influenced by the audit

partner tenure variables, and uses the interaction term $EPSr_t * Tenure_t$ in a manner similar to Ghosh and Moon (2005). The findings show that the coefficients on auditor tenure and the interaction terms (β_3 and β_4) are different from those found by Wang (2009) who uses dummy variables for long and short auditor tenure. If investors perceive the market value of equity as improving or declining with auditor tenure, β_3 and β_4 are expected to differ from zero. This study uses the t test to examine the statistical significance of the regression coefficient, β_3 and β_4 in a manner similar to (Greene, 2008; Wooldridge, 2006).

EMPIRICAL RESULTS

To examine the models for multicollinearity problems, the variance inflation factor (VIF) is computed. The Variance Inflation Factor (VIF) is less than 10 for each of the regressions indicating no serious collinearity among the research variables (Greene, 2008). The empirical results are summarized for the full sample in Table 2 and for the electronics and general industries only in Table 3.

Table 2: Empirical Results for the Full Sample

Variables	Model 1	Model 2
Intercept (β_0)	-31.24 (-1.18)	-39.60(-1.46)
BV (β_1)	0.78 (1.89)*	0.84 (2.05)**
EPSr (β_2)	2.43 (4.79)***	3.86 (5.06)***
Tenure (β_3)		0.34 (1.67)*
EPSr*Tenure (β_4)		-0.22 (-2.66)***
BVBt-1 (β_5)	0.59 (1.56)	0.60 (1.64) *
Age (β_6)	0.07 (0.95)	0.06 (0.78)
Growth (β_7)	31.01 (10.93)***	31.47 (11.32)***
Leverage (β_8)	15.01 (2.02)**	18.36 (2.23)**
Size (β_9)	-1.31 (-0.54)	-1.12 (-0.48)
R ²	0.95	0.96
Adjusted R ²	0.94	0.95
F test of model	176.45***	151.55***

*This table shows the regression estimates of the equation model 1: $P_t = \beta_0 + \beta_1 BV_t + \beta_2 EPSr_t + \beta_5 BV_{t-1} + \beta_6 Aget + \beta_7 Growth_t + \beta_8 Leverage_t + \beta_9 Size_t + \epsilon$, and model 2: $P_t = \beta_0 + \beta_1 BV_t + \beta_2 EPSr_t + \beta_3 Tenure_t + \beta_4 EPSr_t * Tenure_t + \beta_5 BV_{t-1} + \beta_6 Aget + \beta_7 Growth_t + \beta_8 Leverage_t + \beta_9 Size_t + \epsilon$ for all samples. The bracket in each cell is the t-statistic. ***, ** and * indicate significance at 1, 5, and 10 percent levels respectively.*

The F test of nested model analysis of all samples, electronic industry samples and general industry samples have 5% statistical significance. The findings show that the accuracy of a firm's value appraisalment increases in the unrestricted model that incorporates audit tenure. Thus the empirical results support hypothesis 1.

For the full sample, the coefficient of Tenure ($\beta_3 = 0.34$) is positive correlated with stock price in Model 2, and has a 10% statistical significance. The coefficient of the interaction term ($\beta_4 = -0.22$) is negatively correlated with stock price in Model 2, and has a 1% statistical significance. When the residual earnings per share is less than 1.55, there is a positive relationship between audit partner tenure and firm value. But when the residual earning per share is more than 1.55 there is a negative relationship between the two variables. Thus, the empirical results support hypothesis 2. This study next analyzes the samples of electronic industry and general industry independently. The results of the electronic industry supports research hypothesis 2, but the general industry results are not significant.

Table 3: The Empirical Results of Research Model for Industry

Industry		Electronic	Industry	General	Industry
Variables / Model		Model 1	Model 2	Model 1	Model 2
Intercept	(β_0)	-24.88(-0.53)	-31.20(-0.69)	-13.19(-0.86)	-18.37(-1.06)
BV	(β_1)	0.90(1.38)	1.13(1.81)**	0.79(2.52)**	0.60(1.74)*
EPSr	(β_2)	2.07(2.54)***	4.28(3.41)***	0.86(1.90)*	1.87(2.17)**
Tenure	(β_3)		1.07(2.03)**		0.01(0.07)
EPSr*Tenure	(β_4)		-0.38(-2.29)**		-0.08(-1.37)
BVt-1	(β_5)	0.65(1.16)	0.63(1.18)	0.50(1.57)	0.67(1.96)*
Age	(β_6)	0.10(0.60)	-0.15(-0.76)	0.09(1.69)*	0.08(1.44)
Growth	(β_7)	35.17(7.64)***	37.95(8.48)***	29.59(15.14)***	28.12(12.62)***
Leverage	(β_8)	33.44(2.43)**	47.35(3.15)***	-2.61(-0.66)	-3.38(-0.73)
Size	(β_9)	-3.30(-0.82)	-4.65(-1.20)	-2.08(-1.37)	-1.38(-0.83)
R ²		0.96	0.97	0.97	0.98
Adjusted R ²		0.95	0.95	0.96	0.97
F test of model		100.54***	89.68***	135.89***	105.56***

This table shows the regression estimates of the equation model 1: $P_t = \beta_0 + \beta_1 BV_t + \beta_2 EPS_{t-1} + \beta_3 BV_{t-1} + \beta_4 Age_t + \beta_5 Growth_t + \beta_6 Leverage_t + \beta_7 Size_t + \epsilon$, and model 2: $P_t = \beta_0 + \beta_1 BV_t + \beta_2 EPS_{t-1} + \beta_3 Tenure_t + \beta_4 EPS_{t-1} * Tenure_t + \beta_5 BV_{t-1} + \beta_6 Age_t + \beta_7 Growth_t + \beta_8 Leverage_t + \beta_9 Size_t + \epsilon$ for samples of electronic industry and general industry. The bracket in each cell is the t-statistic. ***, ** and * indicate significance at 1, 5, and 10 percent levels respectively.

CONCLUSION

This study focuses on Ohlson (1995) valuation model examining audit partner tenure, and the interaction between residual earning per share and audit partner tenure. The empirical results show that adding these variables to a general valuation model influences the decision usefulness of accounting information. When the residual earning per share is less than 1.55, the longer the audit partner tenure, the higher the firm's value. But when the residual earning per share is more than 1.55 the opposite holds. The results provide clear evidence that the relationship between market value and audit partner tenure is dependent on firm profitability.

Because the average residual earning per share of the research samples is 1.09, the finding on the average do not support the concept of legal or professional requirements to implement of audit partner rotation within the same accounting firm in Taiwan. This study points to new possibilities for future research. This study is a valuable reference regarding mandatory audit partner rotation. This study focuses on listed companies from the Taiwan 50 index. The use of larger samples in future research might provide additional insights.

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ACKNOWLEDGEMENT

The author wishes to thank the anonymous reviewers for their excellent comments, resulting in a significant improvement in the quality of this paper.

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