Corporate board leadership and earnings informativeness

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ABSTRACT

This study examines the relationship between six board compositions and the informativeness of earnings. The results show that smaller board sizes are more informativeness of earnings. Longer board service time is viewed as the experience and expertise to manage the firms and increases informativeness of earnings. The average board tenure is positively significant with the informativeness of earnings. The accounting earnings generated from the firms with more independent directors and female directors are highly valued by the investors. Consequently, the accounting earnings generated from these firms are highly valuable to the investors.

1. Introduction

The informativeness of earnings is one measurement of the firm's earnings quality. If the firm has positive earnings, there should be higher stock returns than the firms that generate negative or lower earnings. In this study, we examine the effect of board structure on earnings informativeness. Vafeas (2000) investigate the importance of board structure in mitigating the usefulness of earnings in explaining stock returns. He examines whether the informativeness of earnings (usefulness of earnings), proxies by the earnings-returns relationship, varies with the board size and fraction of outside directors serving on the board. The results suggest that the earnings of firms with the smallest boards in the sample (with a minimum of five board members) are perceived as being more informative by market participants. This implies that investors value more highly earnings information by firms with smaller boards. Anderson, Deli and Gillan (2003) examine the relation between earnings (earnings response coefficients), board characteristics, and audit committee structure. They find a strong relationship between board independence and earnings informativeness. The results suggest that the increase in board independence has the most significant positive effect on the information content of earnings when board activities are

low. Earnings will be more informative if more independent directors or the independence level and the full boards' participation. Moreover, firms that have separated the CEO and board chairman positions appear to have more informative earnings.

Informativeness of earnings is measured by the relationship between stock returns and operating earnings. Firth, Fung and Rui (2006) study ownership, board structure and informativeness and find that firms with more non-executive directors and separate the duties of the chairman and CEO have greater earnings informativeness. The results suggest that firms with more non-executive directors are believed that they have better corporate governance. Consequently, accounting earnings generated are highly valuable to investors. Petra (2007) examines whether the informativeness of earnings proxies by the earnings response coefficient varies with the percentage of outside independent directors serving on the board. The results suggest a positive association between the proportion of outside independent directors serving on the boards and earnings informativeness. Firms with a higher proportion of independent and non-executive directors are viewed as having good corporate governance for the investors. They believe that these firms generate higher accounting earnings and more value to market participants, leading to stronger earnings informativeness.

The further study of Gul, Srinidhi and Ng (2011) on the board gender diversity and the informativeness of stock prices support Adams and Ferreira (2009). This study shows a positive association between gender diversity and stock price informativeness, implying that gender-diverse boards improve public disclosure quality through better monitoring. The results also show that the positive relationship is stronger for firms with weak corporate governance, suggesting that gender-diverse boards could substitute for weak corporate governance.

This study investigates the effect of various types of board structures, which are board size, the proportion of executive directors, the proportion of independent directors, the proportion of female directors, multiple directorial positions (busyness of directors), board tenure (average number of days of directorships served in the company) and informativeness of earnings. Specifically, we examine whether board structure correlates to the earnings informativeness of listed. Earnings informativeness or the earnings' quality is how the earnings can be reflected into the stock returns, measured by the earnings-returns relationship.

2. Background and Hypotheses Development

We set up six main hypotheses to examine the effect of various types of board structures, which are board size, the proportion of executive directors, the proportion of independent directors, the proportion of female directors, multiple directorial positions (busyness of directors), board tenure (average number of days of directorships served in the company) and informativeness of earnings.

Board Size

Prior studies examining board size and firm performance agree that smaller boards are more effective in monitoring and improve firm performance (Yermack (1996) and Eisenberg, Sundgren and Wells (1998)). That is, smaller boards are better in communication and

coordination. Earnings of firms with smaller boards (with a minimum of five board members) are perceived as being more informative by market participants. This implies that investors value more highly earnings information by firms with smaller boards. We develop the hypothesis that examines the relationship between the board size and informativeness of earnings as follows.

H1: Smaller board size is associated with higher earnings informativeness which is measured by the earnings-returns relationship.

Executive Directors

Firms with a higher proportion of non-executive directors are believed to have better corporate governance, and accounting earnings generated are of high value to the investors. That is, it generates higher informativeness of earnings. Nicholson and Kiel (2007) propose that inside (or executive) directors spend their working lives in the company they govern; they understand the businesses better than outside directors and can make superior decisions. We develop the hypothesis that examines the relationship between the proportion of executive directors and earnings informativeness.

H2: A higher proportion of executive directors in the boardroom is associated with lower earnings informativeness, measured by the earnings-returns relationship.

Independent Director

Consistent with the view of market participants, the informativeness of earnings increase when there is a higher proportion of outside independent directors serving on the boards. This implies that firms with more independent directors are believed that they have better corporate governance. These firms generate high-quality accounting earnings that are more valuable to market participants and lead to higher earnings informativeness (Rosenstein and Wyatt's (1990). We develop the hypothesis that examines the impact of the proportion of independent directors on the informativeness of earnings as follows.

H3: A higher proportion of independent directors in the boardroom is associated with higher earnings informativeness measured by the earnings-returns relationship.

Board Gender Diversity

A Gender-diverse board improves the quality of public disclosure through better monitoring. Gender-diverse boards could substitute for weak corporate governance (Bhagat and Black (2002)). Therefore, board gender diversity is viewed as a positive for a good corporate governance firm. Accounting earnings generated from these firms are highly valued to the investor perception and lead to the higher informativeness of earnings. We develop the hypothesis that examines the impact of female directors' proportion on the informativeness of earnings as follows.

H4: Gender diversity in the boardroom is associated with higher earnings informativeness, measured by the earnings-return relationship.

Multiple Directorship Positions (Busy Directors)

The firms with more proportion of busy directors are viewed as weaker corporate governance firms. We develop a hypothesis that examines the relation of the proportion of

busy directors on the informativeness of earnings. It responds to the lower usefulness of accounting earnings in market participants' perception, leading to lower-earning informativeness (Ferris, Jagannathan and Pritchard (2003) and Di Pietra, Grambovas, Raonic and Riccaboni, (2008)).

H5: A higher proportion of busy directors in the boardroom is associated with lower earnings informativeness measured by the earnings-returns relationship.

Length of directorship or Board tenure

Board tenure is one of the most important criteria for evaluating board effectiveness. In the same direction with the informativeness of earnings, investors may value the longer-tenured directors as they provide experience and knowledge that help enhance the company's performance (Canavan, Jones and Potter (2004) and Vafeas (2003)). On the other hand, they may view the longer board tenure as a distortion in improving the companies. Thus, the quality of earnings or the informativeness of earnings can be either negatively or positively associated with the average board tenure. We develop the hypothesis that examines the relation between board tenure on the informativeness of earnings as follows.

H6: Longer directorship in the boardroom may be associated with higher or lower earnings informativeness measured by the earnings-return relationship.

The hypotheses developments are summarized below.

Board structure and Earnings informativeness

Board Structure		Earnings informativeness (Earnings-returns relationship)
Earnings		+
Board size	**H1**	-
Proportion of executive directors	**H2**	-
Proportion of independent directors	**H3**	+
Proportion of female directors	**H4**	+
Proportion of busy directors	**H5**	-
Board tenure	**H6**	+/-

3. Data and Methodology

3.1 Data

The data used in this study is obtained from SETSMART. SETSMART includes the information of listed companies on the Stock Exchange of Thailand covering 23 years from January 1997 – December 2020. SETSMART database provides the information of the board of directors: board's titles, board name and surname, type of board (independent director or executive director), the period of board service time, and board position. In addition, we obtain the details of the quarterly company's financial statement from SETSMART. The information includes the total asset, total liability, shareholder's equity, revenue, expense, net profit, number of shares outstanding, PAR value and the stock price

at the end of each quarter. SETSMART database also provides the company's specific information such as the name of the company, the name of security, and types of industry or sectors. Lastly, stock returns are calculated from the close stock price after adjustment (a stock price that adjusts for changing PAR and XR) at the end of each quarter. SET index quarterly returns are obtained from SETSMART.

Financial performances, i.e., Tobin's Q, ROA and ROE of the firms, are calculated from each company's quarterly financial statement and year-end financial statement. The firm's stock returns are calculated by the stock price difference between the end and the beginning of the period and then divided by stock price. SET returns are calculated by the difference of the SET index between the end and the beginning of the period and then divided by the SET index at the beginning of the period. These returns and the data of board characteristics or board structure are calculated quarterly.

To maintain the integrity of the dataset, we only include the sample of listed companies on the Stock Exchange of Thailand, which covers 23 years from 1997 to 2020. The data are cleaned up and arranged for calculation and investigation. First, we integrate all the directors' information with the companies' details and exclude all incomplete and missing data. Second, we define the board structures: the board size, executive directors, independent directors, female directors, busy directors, and board tenure. Third, we calculate the board structure variables not directly provided in SETSMART, i.e., number of boards (board size), busy boards, board tenure, and proportion of each type of board. All board characteristics are calculated based on the companies that boards served during each quarterly period.

The company financial statement data set is merged with the board of directors' information and adjusted for incomplete or missing data. For example, we delete the firms with zero stock prices to calculate stock returns and those with zero or negative equity book value to measure equity return. Then we calculate the firm financial performances, which are Tobin's Q, ROA, and ROE. Moreover, we calculate the stock returns and firm characteristics (firm size and leverage) based on companies' financial statements. It should be noted that the data of quarterly company financial statements obtained from SETSMART are presented in the thousand Baht unit. Thus, we adjust the unit for the calculation to present as in the same unit.

SET index returns are obtained from SETSMART. We inquire about the SET index from the year 1996-2020 to calculate quarterly SET returns. Then we merge this information with stock returns to calculate abnormal returns. Finally, the total number of samples used for examination is 16,191 samples.

3.2 Methodology
This section illustrates the variables and the models used to test the relationship between various board structures and firm performance measurement.

3.2.1 Model Specification
For informativeness of earnings, we follow the methodology and measurement based on Vafeas (2000) prior literature and Firth et al. (2006), the earnings-returns relationship and the interaction terms of earnings and the board structure as follow.

$$Ret = \alpha_0 + \alpha_1 EARN + \alpha_2 \ C\_BOD\_SIZE + \alpha_3 EARN * C\_BOD\_SIZE + \alpha_4 \ P\_BOD\_E$$
$$+ \alpha_5 EARN * P\_BOD\_E + \alpha_6 \ P\_BOD\_I + \alpha_7 EARN * P\_BOD\_I + \alpha_8 \ P\_BOD\_F +$$
$$\alpha_9 EARN * P\_BOD\_F + \alpha_{10} \ P\_BOD\_BSY + \alpha_{11} EARN * P\_BOD\_BSY + \alpha_{12}$$
$$C\_AVG\_TENUR + \alpha_{13} EARN * C\_AVG\_TENUR + \alpha_{14} \ V\_LEVERAGE$$
$$+ \alpha_{15} EARN * V\_LEVERAGE + \alpha_{16} V\_FIRM\_SIZE + \alpha_{17} EARN * V\_FIRM\_SIZE$$
$$+ \varepsilon$$

3.2.2 Variables and Measurements

Firm performance measurement variables or dependent variables are as follows.

1. Tobin's Q (V_TOBINQ) is the ratio of the market value of equity plus the book value of debt divided by the firm's total assets.
2. Return on asset (V_ROA) is the ratio of net profit before tax divided by the firm's total assets.
3. Return on equity (V_ROE) is the ratio of net profit before tax divided by the firm's total equity.

3.2.3 Board structure variables or independent variables are

Board size (C_BOD_SIZE) is the firm's board size, calculated by the company's number of board of directors during the quarterly period.

Percentage of executive directors (P_BOD_E) is the proportion of executive directors over the total numbers of directors in the boards during the quarterly period.

Percentage of independent directors (P_BOD_I) is the proportion of independent directors over the total numbers of directors of firm directors in the boards during the quarterly period.

Percentage of female directors (P_BOD_F) is the proportion of female directors over the total numbers of directors of firm directors in the boardroom during the quarterly period.

Percentage of multi-directorships directors or busy directors (P_BOD_BSY) is the proportion of busy directors over the total numbers of directors in the board of firm during the quarterly period. The busy director is defined as the director who simultaneously holds at least three or more directorships in the listed companies.

Length of directorships (C_AVG_TENUR) is the average number of days of directorships in the boards.

Earnings (EARN) is income before tax deflated by the market value of equity at the beginning of the period.

Control Variables.

Firm Leverage (V_LEVERAGE) is the firm leverage ratio calculated as total liabilities divided by the firm's total assets.

Firm Size (V_FIRM_SIZE) is calculated by the natural logarithm of total assets.

We apply two methods of data analysis. The results are divided into two categories. The first type of analysis is the descriptive statistical analysis, which provides the total numbers of samples, average median, average mean, or comparison of means through t-test. The second method of analysis is the ordinary least square regression analysis. We

analyze data using fixed effects regression to control firm and year-specific fixed effects. In addition, we use the regression with the robust standard error to adjust the standard deviations, which helps to increase the reliability of the results from regression. Our approach differs from the analysis using the Granger Causality test in that we attempt to establish the current relationship rather than forecasting the future outcome regarding earnings informativeness.

4. Results

Board structure and Informativeness of earnings

The total samples of listed companies on the Stock Exchange of Thailand are 14,370 samples. The average means of variables in the whole sample are shown in Table 1. We use two stock returns measurements: raw stock returns and abnormal stock returns to measure firm market performance. The average abnormal returns and raw stock returns are 0.85 percent and 3.67 percent, respectively. Earnings (EARN), the net profit before tax deflated by the market value of equity at the beginning of the period, is 0.06 in a percentage point. Table 1 shows the descriptive statistics of each variable in the analysis of board structure and informativeness of earnings.

Table 1
Descriptive Statistics of board structure and earnings

Table 1 reports the descriptive statistics of each variable of samples used in the analysis of board structure, stock returns, and earnings.

Variable	Mean	Median	Minimum	Maximum
Abnormal returns (Percentage)	0.8568	-1.4306	-53.4658	114.6067
Returns (Percentage)	3.6667	1.0899	-52.6899	104.4248
Earnings (Percentage)	0.0657	0.0302	-2.0746	2.2156
Board size	11.6433	11.0000	6.0000	22.0000
Proportion of executive directors	0.1279	0.1111	0.0000	0.3333
Proportion of independent directors	0.2909	0.3000	0.0000	0.6250
Proportion of female directors	0.1434	0.1176	0.0000	0.5455
Proportion of busy directors	0.2620	0.2222	0.0667	0.7692
Average board tenure (Day)	1924.1300	1803.5000	318.5385	4569.4200
Firm leverage	0.4809	0.4831	0.0346	0.9629
Firm size	15.4342	15.1880	12.8042	20.6697

Table 2 presents Pearson correlation coefficients among the variables of board structure, stock returns and earnings. Earnings (EARN) are positively correlated with raw

and abnormal stock returns at a 1% level. It can be interpreted as the informativeness of earnings because they move in the same direction as stock returns. Market participants perceive those earnings generated by the listed firms in Thailand are qualified and useful. The firms with positive or higher earnings have positive or higher stocks returns and abnormal returns.

Table 3 presents a correlation between earnings-returns relationships across the range of each board structure variable. Earnings (EARN) are the net profit before tax deflated by the market value of equity at the beginning of the period. Returns are quarterly raw returns of a stock. We divide each board structure into two groups by the median of each variable to examine the correlation among different groups.

The results show that smaller board sizes in the boardroom are more informativeness of earnings due to a higher significant correlation between earnings and stock returns. The evidence agrees with Yermack (1996) 's findings and Vafeas (2000) 's result that firms with smaller boards are more effective in monitoring management's action. These results also agree with our hypothesis (H1) that informativeness of earnings is higher in firms with smaller boards. The correlation table shows that the earnings-returns coefficient between the higher and lower proportion of executive directors is similar. Therefore, it is difficult to interpret the earnings informativeness regarding the proportion of executive directors. In addition, the results indicate that the above-median proportion of independent directors and above-median proportion of female directors experience significantly stronger earnings-returns correlation (0.11 and 0.12) than the below-median proportion (0.09 and 0.08). More independent directors and female directors are perceived to generate higher earnings quality, reflecting higher informativeness of earnings. These results are in agreement with our hypotheses (H3 and H4). The accounting earnings generated from the firms with more independent directors and female directors are highly valued by the investors.

The fifth board variable is the proportion of busy directors in the boardroom. The below-median proportion of busy directors is associated with a stronger earnings-returns correlation (0.11) than the above-median proportion (0.08), which is consistent with a hypothesis (H5) that more busy directors are associated with weaker corporate governance and lower earnings usefulness. Moreover, above-median average board service time has a stronger earnings-returns correlation (0.11) than below-median board tenure (0.09) which agrees with the results of stock returns and our hypothesis (H6) that market participants perceive the value of longer board-tenured directors. Longer board service time is viewed as the experience and expertise to manage the firms. Thus, it reflects the positive stock returns and higher earnings quality or the informativeness of earnings. Thus, longer board-tenured directors can enhance the firm performance. Consequently, the accounting earnings generated from these firms are highly valuable to the investors.

Table 2 Pearson correlation coefficients of board structure, stock returns and earnings

This table reports the Pearson correlation coefficients among all variables for board structure, stock returns, and earnings.

	Abnormal returns	Returns	Earnings	Board size	Proportion of executive directors	Proportion of independent directors	Proportion of female directors	Proportion of busy directors	Average board tenure	Firm leverage	Firm size
Pearson Correlation Coefficients, N = 14370											
Prob > |r| under H0: Rho=0											
Abnormal returns		0.7681	0.1370	0.0118	-0.0116	-0.0091	-0.0048	0.0110	-0.0029	0.0149	0.0024
	1.0000	<.0001	<.0001	0.1580	0.1648	0.2758	0.5621	0.1887	0.7274	0.0740	0.7777
Returns	0.7681		0.1037	-0.0031	0.0046	0.0160	0.0052	0.0058	0.0387	0.0054	0.0163
	<.0001	1.0000	<.0001	0.7115	0.5857	0.0551	0.5311	0.4904	<.0001	0.5172	0.0505
Earnings	0.1370	0.1037		0.0404	-0.0690	-0.0325	0.0566	0.0136	0.0199	-0.1126	-0.0522
	<.0001	<.0001	1.0000	<.0001	<.0001	<.0001	<.0001	0.1031	0.0170	<.0001	<.0001
Board size	0.0118	-0.0031	0.0404		-0.3470	-0.3473	-0.1100	0.1150	-0.0221	0.0133	0.2008
	0.1580	0.7115	<.0001	1.0000	<.0001	<.0001	<.0001	<.0001	0.0081	0.1110	<.0001
Proportion of executive directors	-0.0116	0.0046	-0.0690	-0.3470		0.2084	0.0938	-0.0525	-0.0050	0.0937	0.0141
	0.1648	0.5857	<.0001	<.0001	1.0000	<.0001	<.0001	<.0001	0.5465	<.0001	0.0915
Proportion of independent directors	-0.0091	0.0160	-0.0325	-0.3473	0.2084		0.0905	-0.0430	0.1363	0.0329	0.1148
	0.2758	0.0551	<.0001	<.0001	<.0001	1.0000	<.0001	<.0001	<.0001	<.0001	<.0001
Proportion of female directors	-0.0048	0.0052	0.0566	-0.1100	0.0938	0.0905		-0.1049	0.1169	-0.0745	-0.1596
	0.5621	0.5311	<.0001	<.0001	<.0001	<.0001	1.0000	<.0001	<.0001	<.0001	<.0001
Proportion of busy directors	0.0110	0.0058	0.0136	0.1150	-0.0525	-0.0430	-0.1049		-0.0844	0.0075	0.2646
	0.1887	0.4904	0.1031	<.0001	<.0001	<.0001	<.0001	1.0000	<.0001	0.3663	<.0001
Average board tenure	-0.0029	0.0387	0.0199	-0.0221	-0.0050	0.1363	0.1169	-0.0844		-0.1180	-0.0686
	0.7274	<.0001	0.0170	0.0081	0.5465	<.0001	<.0001	<.0001	1.0000	<.0001	<.0001
Firm leverage	0.0149	0.0054	-0.1126	0.0133	0.0937	0.0329	-0.0745	0.0075	-0.1180		0.4362
	0.0740	0.5172	<.0001	0.1110	<.0001	<.0001	<.0001	0.3663	<.0001	1.0000	<.0001
Firm size	0.0024	0.0163	-0.0522	0.2008	0.0141	0.1148	-0.1596	0.2646	-0.0686	0.4362	
	0.7777	0.0505	<.0001	<.0001	0.0915	<.0001	<.0001	<.0001	<.0001	<.0001	1.0000

Table 3
Results from the correlations analysis between stock returns and earnings across the several types of board structure (earnings-returns relationship)

This table reports the correlation analysis of each variable of samples used to analyze stock returns and earnings across the several types of board structure (earnings-returns relationship). We separate board structure variables into two groups which are the value below-median and above-median.

Correlation Earnings-return relationship	Coefficient	T-value
Board sizes are less than median	0.1111	***
Board sizes are more than median	0.0981	***
Proportion of executive directors are less than median	0.1022	***
Proportion of executive directors are more than median	0.1048	***
Proportion of independent directors are less than median	0.0905	***
Proportion of independent directors are more than median	0.1144	***
Proportion of female directors are less than median	0.0791	***
Proportion of female directors are more than median	0.1221	***
Proportion of busy directors are less than median	0.1171	***
Proportion of busy directors are more than median	0.0885	***
Average board tenure is less than median	0.0946	***
Average board tenure is more than median	0.1115	***

'*, **, *** indicate coefficients significantly at 10%, 5% and 1% levels, respectively based on t-statistics.

Table 4 presents the regression analysis results explaining the linkage between board structure variables and earnings informativeness. The informativeness of earnings is measured by the earnings-returns relationship and interactive term of earnings and board structure according to the model of Vafeas, N. (2000) and Firth et al. (2006). This regression consists of earnings, board structure variables, the interactive terms of earnings and board structure variables, and stock returns.

Table 4
Results from the regression analysis of board structure and earnings informativeness

Table 4 reports the results of regression analysis (Model six) as the model below.
Ret= α0 + α1EARN + α2 C_BOD_SIZE + α3EARN * C_BOD_SIZE + α4 P_BOD_E + α5EARN * P_BOD_E + α6 P_BOD_I + α7EARN * P_BOD_I + α8 P_BOD_F + α9EARN * P_BOD_F + α10 P_BOD_BSY + α11EARN * P_BOD_BSY+ α12 C_AVG_TENUR +α13EARN * C_AVG_TENUR +α14 V_LEVERAGE +α15EARN*V_LEVERAGE + α16V_ FIRM_SIZE +α17EARN * V_FIRM_SIZE +ε

For informativeness of earnings, we follow the methodology and measurement based on Vafeas (2000) and Firth et al. (2006), the earnings-returns relationship and the interaction terms of earnings and the board structure.

Ret is the quarterly stock return calculated by the difference in stock price at the end and beginning of the period and then divided by stock price at the beginning.
EARN or Earnings are income before tax deflated by the market value of equity at the beginning of the period.

Board structure variables are in the same notation as the previous tables.
There are eight interactive terms: the interactive terms of board structure and earnings and the

interactive terms of control variables and earnings. EARN * C_BOD_SIZE is the interaction terms of earnings and board size, when board sizes are more than sample median, zero otherwise. EARN * P_BOD_E is the interaction terms of earnings and the proportion of executive directors, which is earnings when the proportion of executive directors is more than the sample median, zero otherwise. EARN * P_BOD_I is the interaction terms of earnings and independent directors, which is earnings when proportion of independent directors are more than the sample median, zero otherwise. EARN * P_BOD_F is the interaction terms of earnings and the proportion of female directors, which is earnings when the proportion of female directors is more than the sample median, zero otherwise. EARN * P_BOD_BSY is the interaction terms of earnings and proportion of busy directors, which is earnings when proportion of busy directors are more than sample median, zero otherwise. EARN * C_AVG_TENUR is the interaction terms of earnings and average board tenure, earnings when average board tenure is more than sample median, zero otherwise. EARN *V_LEVERAGE is the interaction terms of earnings and firm leverage, earnings when firm leverage is more than sample median, zero otherwise. EARN * V_FIRM_SIZE is the interaction terms of earnings and firm size, which is earnings when firm size is more than sample median, zero otherwise.

Board Variables and interactive terms of board variables and earnings	Expect	SET	
		Coefficient	T-value
Intercept		-4.2624	-1.68 *
Earnings	+	0.1261	3.58 ***
Board size	-	-0.0176	-0.20
Earnings if board sizes are more than median, zero otherwise	-	-0.0213	-0.89
Proportion of executive directors	-	3.2412	0.83
Earnings if proportion of executive directors are more than median, zero otherwise	-	-0.0112	-0.49
Proportion of independent directors	+	1.6170	0.82
Earnings if proportion of independent directors are more than median, zero otherwise	+	0.0052	0.24
Proportion of female directors	+	-1.1249	-0.61
Earnings if proportion of female directors are more than median, zero otherwise	+	0.0194	0.95
Proportion of busy directors	-	0.8194	0.57
Earnings if proportion of busy directors are more than median, zero otherwise	-	-0.0113	-0.60
Average board tenure	+/-	0.0010	4.45 ***
Earnings if average board tenures are more than median, zero otherwise	+/-	-0.0238	-1.05
Firm leverage	-	1.6730	1.50
Earnings if firm leverage are more than median, zero otherwise	-	-0.0158	-0.77

Firm size	+	0.2469	1.45
Earnings if the firm size are more than median, zero otherwise	+	-0.0094	-0.45
R-square		1.38%	
F-Value		6.78	

'*, **, *** indicate coefficients significantly at 10%, 5% and 1% levels, respectively, based on t statistics.

The regression results from Table 4 highlight a highly significant positive correlation between earnings and quarterly stock returns at the 1% level. Its coefficient is 0.126. This implies that a change in deflated earnings by 1 percent leads to a change in quarterly raw returns of stock by 0.126 percent and 0.136 percent, respectively. The results suggest that earnings generated from the accounting system of the listed firms are quite informative in market participants' perceptions. Earnings move in the same direction as stock returns, representing the usefulness of earnings in predicting stock returns. This implies that market participants consider the earnings of the listed firms as useful information in deciding for investing so that it results in higher stock returns.

In addition, the results of regressions in Table 4 show the evidence of board structure variables, earnings, and the interaction term of earnings and board structure in correlation with the stock returns, which represent the informativeness of earnings. The results in Table 4 reinforce Table 4 that board structure variables are less correlated with the stock returns. The average board tenure is positively significant with stock returns which agree with the hypothesis (H6). The interactive term captures the difference in earnings usefulness between firms with the above median of board structure and all remaining firms. In Table 4, the results show no significant association between the interactive term of earnings and board structure with the stock return. The empirical results indicate the less usefulness of board structure in responding to the stock return.

5. Conclusion

This study examines the effects of board structure or board characteristics on the informativeness of earnings. Market participants perceive those earnings generated as qualified and useful. The firms with positive or higher earnings have positive or higher stocks returns and abnormal returns. This study examines the relationship between board compositions and the informativeness of earnings. The results show that smaller board sizes are more informativeness of earnings. Longer board service time is viewed as the experience and expertise to manage the firms and increases informativeness of earnings. The average board tenure is positively significant with the informativeness of earnings. The accounting earnings generated from the firms with more independent directors and female directors are highly valued by the investors. Consequently, the accounting earnings generated from these firms are highly valuable to the investors.

The empirical results contribute to policymakers' concern when establishing the rules or regulations related to the board of directors in listed firms. This is because it is proved that board structure has an impact on the informativeness of earnings. The results contribute to investors and market participants to consider board structure to invest in the companies. However, there are possible limitations to this research. The scope of board structure or board characteristics and financial data used in this study are very limited which is subjected to the information provided in SETSMART which does not include other information such as board nationality. Though it is not likely to have a diverse sample in Thailand. Therefore, in future study, it is suggested to consider more areas or more details on board characteristics and other factors that may related to or have an influence on informativeness of earnings. Besides, it is

suggested to perform an investigation on each sector or each industry or analyze in different period of time.

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