

<https://doi.org/10.5281/zenodo.5565466>

BOARD COMPOSITION, BOARD DIVERSITY AND STOCK PERFORMANCE

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Received: 2021-09-08

Accepted: 2021-09-21

Published online: 2021-10-12

Abstract

The study investigates the relationship between six board compositions and stock returns. The results indicate a significant association between various board compositions and stock returns. Specifically, board size and executive directors have a negative impact, whereas independent directors enhance stock returns. Busy directors positively impact the abnormal stock returns for the companies in the non-financial industry, which implies that busy directors who serve on more boards tend to be well connected. More importantly, the results indicate a significant positive relationship between board tenure and stock returns. Board service time is perceived as the board quality of knowledge and experience from the investors' point of view.

JEL Classification: G11, G23

Keywords: corporate governance, board structure, board composition, stock return, abnormal return.

1. Introduction

An agency is a relationship between two parties. One is a principal (such as shareholders), and the other is an agent representing the principal in transactions with a third party (such as the company executives). Agency relationships occur when the principals hire the agent to perform a service on the principals' behalf. Principals commonly delegate decision-making authority to the agents. The agency problems arise when the desires or goals of the principal and agent conflict. The management, manager or board of directors as the agent who owns an interest in firms and knows more information about the firms tend to maximize their interest at the expense of shareholders rather than maximize shareholders' wealth.

According to the view of agency theory, the board of directors acts and performs its responsibilities to protect the interests of shareholders. The board of directors is envisaged to monitor management and protect shareholders' rights on behalf of shareholders. (Jensen and Meckling (1976) and Kumar and Singh (2012)). As the shareholders' representative, the board of directors plays a crucial role in deciding company policy and strategy, reviewing performance, and ensuring that management follows the stated policies and strategies to maximize the benefit to shareholders. However, the boards of directors and management have an incentive to perform the management tasks in their interest, maximizing their income or bonus. For example, suppose their benefits depend on the firm's performance, i.e., revenue or profit. In that case, the management will be concerned only about the revenue or profit in the short run regardless of the effect on future performance. They may tend to manipulate the report or financial statement to reach the goals to get some benefit such as the special bonus and the increase in their salary. Moreover, they may organize incentive schemes for managers to reward themselves. For the investment decision, they might accept the riskier projects to gain more benefits and increase their chance of getting the rewards. However, this is risky for shareholders and the company. In such cases, the agency problem occurs because the agents act for their interest, which conflicts with the principal interest.

In this paper's context of agency theory, if the agency problem caused by the conflict of interest exists, the board of directors considered the agent, focuses on and works for their interest more than the firm's wealth. These will distort shareholders' value or firm value and affect weaker firm performance. Prior studies reinforce that board structure or board characteristics impact corporate governance and company performance. A well-constructed board helps to improve the firm value and enhance firm performance. Board structure or board characteristics are viewed as the positive or negative sign of the firm from the perspective of market participants. The board of directors is a vital issue for good corporate governance and affects the firm performance. Therefore, there have developed principles or regulations related to the board of directors to control, monitor, and ensure the good corporate governance of the firm.

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 common stock returns. Specifically, we examine whether board structures affect listed companies' stock returns and abnormal stock returns. Stock returns are calculated by the difference in stock price at the end and beginning of the period and then divided by stock price at the beginning of the period. Abnormal stock returns are calculated using market-adjusted returns, the difference between stock returns and benchmark returns.

The remainder of this study is organized into five sections. Section 2 provides a literature review. Section 3 discusses hypotheses development. Section 4 describes the data description, sample screening procedures and methodology used in the study. Section 5 reports the empirical results and discussion of findings, and Section 6 contains conclusions.

2. Literature Review

Prior studies examine the relationship of the board structure, board characteristics and firm performance. Many characteristics of the board have been linked to the firm performance. Another measurement of firm performance is based on the perspective of market participants, particularly investors, which the stock returns can measure. If the market perceived the good firm performance, the company's stock returns should be higher than the firm that has been perceived as the poor performance.

Yermack (1996) examines the relationship between board size and firm performance using various measurements. He reports the evidence that the significant changes in board size affect stock returns and shows that investors react positively when boards shrink and negatively when board size increases. He also identifies that some firms realize positive abnormal stock returns around the announcement date of significant reductions in board size. In contrast, a parallel sample announcing large expansions in board size realizes negative abnormal returns. The results imply that the companies with small boards are more highly valued in the capital markets. Cheng (2008) examines the impact of board size using the sample data on corporate directors and monthly stock returns. The study concludes that board size is negatively associated with the variability of monthly stock returns. The results are consistent with the view that it takes more compromises for a larger board to reach consensus and the decisions of larger boards are less extreme, leading to less variability of corporate performance. Guest (2009) finds strong evidence of a negative relation between board size, firm performance, and share returns. He finds that companies with large boards appear to have lower Tobin's Q and lower share returns. The results suggest that UK boards play a weak monitoring role. Therefore, any adverse effect of large board size is likely to reflect the malfunction of the board's advisory rather than monitoring role. Overall, the evidence supports the argument that problems of poor communication and decision-making undermine the effectiveness of large boards.

It is generally presumed that boards with greater independence are more effective in performing the monitoring roles. Rosenstein and Wyatt (1990) suggest that a higher proportion of independent directors are positively associated with excess stock returns. They perform event studies and find that stock prices increase when companies appoint additional independent directors. Nevertheless, Rosenstein and Wyatt (1997) find that stock prices neither increase nor decrease when an insider is

added to the board. Bhagat and Black (2002) show the positive impact of board composition on firm performance measured by the stock price. They argue and raise the concern that using stock returns as a performance-based measure must be used with caution because of the investor anticipation. If investors fully anticipate the effects of board composition on performance, stock returns will be insignificant, even if a significant correlation between firm performance and board independence exists.

In recent years, there is a significant growth in the numbers of female directors, which results in more gender diversity in the boardroom. The gender composition of the board is believed to contribute positively to board effectiveness. Prior research reports the relationship between gender diversity and firm performance. Adams and Ferreira (2009) study the fraction of female directors and firm performance. They report the evidence that female directors have a significant impact on board inputs and firm outcomes. They suggest that female directors have better attendance records than male directors. Thus, female directors could add value by bringing new ideas and different perspectives to the boardroom. These results suggest that gender-diverse boards allocate more effort in monitoring and improve firm performance.

Ferris, Jagannathan and Pritchard (2003) find positive stock returns when a firm adds a multiple director or busy director for the first time. The findings imply that such directors' enhanced experience or reputation benefits shareholders and other market participants. Their event study results suggest that market participants do not view the appointment of multiple directors or busy directors as an adverse event for the firm. Sirisophonphong (2020) states that generally, female directors in the boardroom negatively impact firm performance. Nevertheless, female directors help improve performance in busy firms that typically negatively impact firm performance. This suggests that having female directors in the boardroom brings some benefits and helps to improve firm performance. Female directors help to monitor those busy directors, which is a plus to the firm. The definitions of a busy firm explained in her study are the firms in which 50 percent of firm directors are busy (sit in the boardroom of more than three firms simultaneously) and the firm with at least one busy CEO and chairman. This result agrees with the previous studies in other countries. Consequently, it may confirm that a gender-diverse board allocates more effort to monitoring and helps to improve firm performance.

3. Hypothesis Development

Based on the review of previous studies, we set up six main hypotheses on board structure and stock returns.

Board Size

Larger board size is likely to reflect the malfunction of the board's advisory rather than the monitoring role. Therefore, the smaller board is better for a higher firm operating performance and stock returns.

H1: Smaller board size is associated with a higher firm performance which is measured by stock returns.

Executive Directors

A higher proportion of executive directors to the numbers of non-executive directors can somewhat cause conflicts of interest that lead to weaker firm performance.

H2: A higher proportion of executive directors in the boardroom is associated with a weaker firm performance measured by stock returns.

Independent Director

Independent directors' roles are viewed as monitoring and help to improve the corporate governance in the companies. Prior studies report that a higher proportion of independent directors or outside boards has improved the firm performance and overall profitability. Thus, the higher proportion of independent directors is associated with a better firm operating performance and excess stock returns.

H3: A higher proportion of independent directors in the boardroom is associated with a higher firm performance measured by stock returns.

Board Gender Diversity

Gender diversity in the boardroom also generates more opinions, new ideas, and perspectives and creates critical questions that improve discussion, decision-making, and firm performance. Consistent with the market participants' perceptions, a gender-diverse board improves the quality of public disclosure through better monitoring. Gender-diverse boards could act as a substitute mechanism for weak corporate governance. Therefore, board gender diversity is viewed as a positive for a good corporate governance firm. That is, accounting earnings generated from these firms are highly valuable to the investor perception.

H4: Gender diversity in the boardroom is associated with a higher firm performance measured by stock returns.

Multiple Directorship Positions (Busy Directors)

Busy directors are associated with weaker corporate governance. They have a negative relationship with the firm operating performance. The firm with a higher proportion of busy directors is experienced lower market-to-book ratios, lower

operating ROA, and weaker profitability. In addition, the departures of busy outside directors generate positive abnormal returns (ARs). The decrease in stock price tends to be greater for firms that appoint busy directors. These indicate that busy directors are viewed as unfavorable to the company's performance.

H5: A higher proportion of busy directors in the boardroom is associated with a weaker firm performance measured by stock returns.

Length of directorship or Board tenure

Outside directors with over 20 years tenure were viewed and often performed more like inside directors. These tenured directors have negatively affected board independence and corporate performance. In summary, longer board tenure may affect either better or weaker firm performance.

H6: Longer directorship in the boardroom may be associated with higher or lower firm performance measured by stock returns.

4. Data and Methodology

4.1 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. 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.

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.

4.2 Methodology

This section illustrates the variables and the models used to test the relationship between various board structures and stock returns.

4.2.1 Variables and Measurements

Stock returns variables, or dependent variables are as follows.

Stock returns (Ret) are the quarterly stock returns calculated by the difference in stock price at the end and beginning of the period and then divided by stock price at the beginning of the period.

Stock abnormal returns (Ret_ab) are the quarterly abnormal stock returns calculated using market-adjusted returns.

Market-adjusted return is the difference between stock returns and benchmark returns. Our benchmark returns are the SET index returns calculated by the difference of the SET index between the end and the beginning of the period, then divided by the SET index at the beginning of the period.

The calculation of stock returns and abnormal stock returns are as follow;

We use market-adjusted returns to compute the abnormal returns. Our benchmark returns are the SET index returns calculated by the difference of the SET index between the end and the beginning of the period, then divided by the SET index at the beginning of the period.

$$AR_{it} = R_{it} - R_{mt} \quad \text{where} \quad R_{it} = \frac{(P_{it+1} - P_{it})}{P_{it}} \quad \text{and} \quad R_{mt} = \frac{(P_{mt+1} - P_{mt})}{P_{mt}}$$

- R_{it} = percentage change of the adjusted close price of stock i on quarter $t+1$ relative to the close price on quarter t

- R_{mt} = percentage change of the close price of the SET index on quarter $t+1$ relative to the close price on quarter t

- AR_{it} is the abnormal stock returns or Ret_ab, and R_{it} is the stock returns or Ret

4.2.2 Model Specification

Market-based firm performance: Quarterly stock returns

$$\text{Ret} = \alpha_0 + \alpha_1 \text{C_BOD_SIZE} + \alpha_2 \text{P_BOD_E} + \alpha_3 \text{P_BOD_I} + \alpha_4 \text{P_BOD_F} + \alpha_5 \text{P_BOD_BSY} + \alpha_6 \text{C_AVG_TENUR} + \alpha_7 \text{V_LEVERAGE} + \alpha_8 \text{V_FIRM_SIZE} + \varepsilon$$

(Model 1)

Quarterly abnormal stock returns

$$\text{Ret}_{ab} = \alpha_0 + \alpha_1 \text{C_BOD_SIZE} + \alpha_2 \text{P_BOD_E} + \alpha_3 \text{P_BOD_I} + \alpha_4 \text{P_BOD_F} + \alpha_5 \text{P_BOD_BSY} + \alpha_6 \text{C_AVG_TENUR} + \alpha_7 \text{V_LEVERAGE} + \alpha_8 \text{V_FIRM_SIZE} + \varepsilon$$

(Model 2)

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.

5. Results

Table 1 shows the descriptive statistics of each variable in the analysis of board structure, stock returns and informativeness of earnings. The total samples of listed companies are 14,370 companies.

Table 1. Descriptive Statistics of board structure and stock returns

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 1 reports the descriptive statistics of each variable of samples used in the analysis of board structure, stock returns, and earnings. This table is divided into three panels.

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 2 presents the regression analysis results (Model 1 and 2), explaining the linkage between board structure and raw returns of stock and abnormal stock returns. The results indicate a less significant association between stock returns and board structure variables. The only significant variable is average board tenure. Board tenure has a significant positive association with raw returns of stock at the level of 1%, which agrees with our hypothesis (H6), which implies that board service time is perceived as the board quality of knowledge and experience from the investors' point of view. It enhances the firm performance and is attractive for investors, then generates positive returns of a stock.

As shown in this model, in investors' point of view, board structures are not considered the significant factors for investing to generate higher returns. The only concern for the investors is the average board service time which represents the knowledge and expertise of directors in managing the business. Moreover, we further investigate board structure

This table reports the regression analysis results (Model 1 and Model 2) as the regression models below.

$$\begin{aligned} \text{Ret} &= \alpha_0 + \alpha_1 \text{C_BOD_SIZE} + \alpha_2 \text{P_BOD_E} + \alpha_3 \text{P_BOD_I} + \alpha_4 \text{P_BOD_F} + \alpha_5 \text{P_BOD_BSY} + \alpha_6 \text{C_AVG_TENUR} + \alpha_7 \text{V_LEVERAGE} + \alpha_8 \text{V_FIRM_SIZE} + \varepsilon \\ \text{Ret_ab} &= \alpha_0 + \alpha_1 \text{C_BOD_SIZE} + \alpha_2 \text{P_BOD_E} + \alpha_3 \text{P_BOD_I} + \alpha_4 \text{P_BOD_F} + \alpha_5 \text{P_BOD_BSY} + \alpha_6 \text{C_AVG_TENUR} + \alpha_7 \text{V_LEVERAGE} + \alpha_8 \text{V_FIRM_SIZE} + \varepsilon \end{aligned}$$

Table 2. Results from the regression analysis of board structure, stock returns and abnormal returns.

Board Variables		Ret Coeff	T-value	Ret_ab Coeff	T-value
	Expect				
Intercept		-2.8250	-1.11	1.7530	0.85
Board size	-	-0.0220	-0.25	0.0561	0.76
Proportion of executive directors	-	0.6696	0.17	-2.9791	-0.92
Proportion of independent directors	+	1.4173	0.73	-0.5551	-0.36
Proportion of female directors	+	0.5721	0.32	-0.3216	-0.20
Proportion of busy directors	-	0.8565	0.60	1.6034	1.30
Average board tenure (Day)	+/-	0.0010	4.33 ***	0.0000	0.06
Firm leverage	-	0.2726	0.25	1.8737	2.03 **
Firm size	+	0.2511	1.48	-0.1494	-1.08
R-Square		0.20%		0.06%	
F-Value		3.13		1.02	

*, **, *** indicate coefficients significantly at 10%, 5% and 1% levels, respectively based on t-statistics and abnormal stock returns in Model 1 to examine the returns of stock compared with the market returns (SET index returns). The analysis is performed in the same criterion as in the stock returns analysis. The results show a less and insignificant association between board structure variables and abnormal stock returns.

Nevertheless, the results indicate that busy directors positively impact the abnormal stock returns for the companies in the non-financial industry, which implies that busy directors who serve on more boards tend to be well connected. Therefore, they are viewed by investors as more effective in signaling success in firms' business. Consequently, it leads to positive abnormal stock returns.

6. Conclusion

This study uses six board structure types, and various stock returns measurements to examine the effects of board structure or board characteristics on stock returns. The empirical results show the significant relationship between board structure and firm performance. The board structure and board characteristics influence and stock returns. The results show a significant association between board compositions and stock returns. Board size and executive directors have a negative impact on stock returns, whereas independent directors enhance stock returns. Busy directors positively impact the abnormal stock returns for the companies in the non-financial industry, which implies that busy directors who serve on more boards tend to be well connected. More importantly, the results indicate a significant positive relationship between board tenure and stock returns. Board service time is perceived as the board quality of knowledge and experience from the investors' point of view. These results contribute to policymakers' concern when establishing the rules or regulations related to the board of directors in listed firms and investors' and market participants' consideration of board structure to invest in the companies.

References

- Adams, R. B., and Ferreira, D. (2004). Gender diversity in the boardroom. European Corporate Governance Institute, Finance Working paper.
- Adams, R. B., and Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of financial economics*, 94(2), 291-309.
- Anderson, K. L., Deli, D. N., and Gillan, S. L. (2003). Boards of directors, audit committees, and the information content of earnings. Weinberg Center for Corporate Governance.
- Bhagat, S., and Black, B. (2002). The non-correlation between board independence and long-term firm performance, *Journal of Corporation Law*, 27 (2), 231-274.
- Campbell, K., and Minguez-Vera, A. (2008). Gender diversity in the boardroom and firm financial performance. *Journal of Business Ethics*, 83(3), 435-451.
- Cheng, S. (2008). Board size and the variability of corporate performance. *Journal of Financial Economics*, 87(1), 157-176.

- Cho, S., and Rui, O. M. (2009). Exploring the effects of China's two-tier board system and ownership structure on firm performance and earnings informativeness. *Asia-Pacific Journal of Accounting & Economics*, 16(1), 95-117.
- Connelly, J. T., and Limpaphayom, P. (2004). Board characteristics and firm performance: Evidence from the life insurance industry in Thailand. *Chulalongkorn Journal of Economics*, 16(2), 101-124.
- Darrat, A.F., Gray, S. and Park, J.C. (2016), "Corporate governance and bankruptcy risk", *Journal of Accounting, Auditing & Finance*, 31, (2), 163-202.
- Di Pietra, R., Grambovas, C. A., Raonic, I., and Riccaboni, A. (2008). The effects of board size and busy directors on the market value of Italian companies. *Journal of Management & Governance*, 12(1), 73-91.
- Edwards, F. R. (2004). US Corporate Governance: What Went Wrong and Can It Be Fixed?. *Market discipline across countries and industries*, 237.
- Ferrer, R. C. (2012). The influence of corporate board characteristics on firm performance of publicly listed property companies in the Philippines. *Academy of Accounting and Financial Studies Journal*, 16(4).
- Ferris, S. P., Jagannathan, M., and Pritchard, A. C. (2003). Too busy to mind the business? Monitoring by directors with multiple board appointments, *Journal of Finance*, 58(3), 1087-1112.
- Fich, E. M., and Shivdasani, J. (2006). Are busy boards effective monitors?. *The Journal of Finance*, 61(2), 689-724.
- Guest, P. M. (2009). The impact of board size on firm performance: evidence from the UK. *The European Journal of Finance*, 15(4), 385-404.
- Jensen, M. C. and Meckling, W. H., (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure," *Journal of Financial Economics*, 3(4), 305-360.
- Kumar, N., and Singh, J. P. (2012). Outside Directors, Corporate Governance and Firm Performance: Empirical Evidence from India. *Asian Journal of Finance & Accounting*, 4(2), 39-55.
- Larmou, S., and Vafeas, N. (2010). The relation between board size and firm performance in firms with a history of poor operating performance. *Journal of Management & Governance*, 14(1), 61-85.
- Lin, C. J. (2011). An examination of board and firm performance: Evidence from Taiwan. *International Journal of Business and Finance Research*, 5(4), 17-34.
- Malkiel, B. G., and Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, 25(2), 383-417.
- Marlin, D., and Geiger, S. W. (2012). The Composition of Corporate Boards of Directors: Does Industry Matter?. *Journal of Business & Economics Research (JBER)*, 10(3), 157-162.
- Mashayekhi, B. (2008). Corporate governance and earnings management: evidence from Iran. *Afro-Asian Journal of Finance and Accounting*, 1(2), 180-198.

- Nicholson, G. J., and Kiel, G. C. (2007). Can Directors Impact Performance? A case-based test of three theories of corporate governance. *Corporate Governance: An International Review*, 15(4), 585-608.
- Pathan, S., Skully, M., and Wickramanayake, J. (2007). Board size, independence and performance: an analysis of Thai banks. *Asia-Pacific Financial Markets*, 14(3), 211-227.
- Petra, S. T. (2007). The effects of corporate governance on the informativeness of earnings. *Economics of Governance*, 8(2), 129-152.
- Sirisophonphong P. (2020), Women directors, network and firm performance in Thailand, Chulalongkorn University thesis paper.
- Uadiale, O. M. (2010). The impact of board structure on corporate financial performance in Nigeria. *International Journal of Business and Management*, 5(10), P155.
- Vafeas, N. (2000). Board structure and the informativeness of earnings. *Journal of Accounting and Public Policy*, 19(2), 139-160.
- Yamneesri, J., and Herath, S. K. (2010). Board characteristics and corporate value: evidence from Thailand. *Corporate Governance*, 10(3), 279-292.
- Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of financial economics*, 40(2), 185-211.