

Board Capital and Firm Performance

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Abstract. This study examines the influence of board capital on firm performance. Annual reports are used as the main sources for data collection. This study finds that firm performance decreases with gender diversity. Next, the interlocking directorate is not associated with firm performance. The findings would be useful to Malaysian policy-makers in deliberating the board's role as a governance mechanism in strengthening the board structure. The results suggest selecting a director with relevant knowledge and perspective rather than simply meeting the number of board seats.

1. Introduction

In recent years, societal pressure for greater corporate accountability has intensified. The pressure for greater accountability in corporate decision-making has increasingly focused on the board's role in bringing resources to the firm, resources being anything that strengthens or weakens a given firm [1]. The broader literature on boards emphasises the board's role as a control mechanism and advises top managers on possible strategic changes or implementing existing strategies [2, 3]. According to Haynes and Hillman [4], the firm performance depends on the board capital because strategic change is closely related to the competency of the board of directors.

Board of directors are central decision-makers and, as such, have the highest authority to allocate resources [5]. The board of directors plays a vital role in determining the type of business, setting the firm's direction, analysing threats and opportunities, strengths and weaknesses, and deciding the firm's strategies [6]. Consequently, effective board capital contributes to firm performance due to the need to accommodate ongoing changes [7].

In Malaysia, the Asian Financial Crisis in 1997 and the Global Financial Crisis in 2008 have resulted in a severe recoil in the firms' management practices as the firms struggled for survival of firms during the recurring crises [8]. To sustain the firms during the financial crisis, firms adopt short-term strategies with bad management practices [9]. These bad management practices resulting from ineffective monitoring of managerial discretion are the causes of weak corporate governance in firms [10].

The evidence of bad management practices arising from the financial crisis can be seen in the fraud incidents in Malaysia. An example of this is the PwC's Global Economic Crime and Fraud Survey in 2020, which indicates a high level of fraud, where 33% of fraud incidents are attributed to internal management in Malaysian firms [11]. Similarly, Maybank and Election Commission of Malaysia are involved in major data breaches [12]. The incidents above of misusing personal data show a lack of control and governance over data in businesses [13]. This further emphasises the internal problem faced by the management. Board capital is a fundamental corporate governance mechanism to dictate the firm's strategic direction. [14]. Evidence on board capital and firm performance shows mixed results suggesting that board attributes can positively or negatively influence firm performance or may have no effect [15-18].

The literature on firm performance has primarily focused on the effect of individual firm-specific or board attributes on firm performance, for example, the effect of gender diversity on firm performance [19]. As a result, understanding board capital effect on firm performance is not complete. This study aims to fill this knowledge gap by studying the effects of a varied collective array of board capital (gender and interlocking directorates) on the firm performance. This study examines the association between board capital and firm performance based on resource dependence theory. As board capital portrays various societies and the community served by the firm, the social contract between a firm and its stakeholders is strengthened.

The objective of this study is to examine the effect of board capital on firm performance. This study extends the understanding of co-optation and organisation performance in resource dependence theory. This study posits that board capital is the primary linkage to acquiring sufficient support from the external environment for resource exchanges. Furthermore, this study encourages policy formulation, strengthens board structure, and emphasises the board's role as a governance mechanism. Therefore, the outcomes of this study offer practical insights to policymakers and the Malaysian government to advocate board capital in enhancing firm performance.

This study employs the resource dependence theory by Pfeffer and Salancik [20] to examine firm performance and its association with board capital. It posits that an organisation does not operate alone within a community. This theory pontificates that firms are open systems that rely on the external environment to function efficiently [20, 21]. Dalton, Daily [22] states that firms perform better when they can deal with environmental uncertainty and interdependence. The board of directors can discover critical information and essential resources that reduce uncertainty for strategic decision-making [23]. This theory provides a comprehensive perspective on board capital affecting firm performance. It analyses the relationship between the organisations and the external parties on which they depend to acquire resources. The ability of the board of directors to contribute resources to the firm by connecting the firm with its external environment is crucial, as supported by this theory [24]. Frynas and Yamahaki [25], Reguera-Alvarado, Fuentes [26] and Bear, Rahman [27] document that board capital increases the effectiveness in managing the business environment and enhances firm performance.

The rest of this study is arranged as follows: Section 2 provides the literature review leading to the development of hypotheses; Section 3 explains the research methodology adopted in this study; Section 4 gives an insight into the empirical findings of this study; Section 5 concludes this study.

2. Literature Review and Hypotheses Development

2.1 Theory Explaining Firm Performance

Firm performance is explained using the resource dependence theory, initially developed by Pfeffer and Salancik [20]. The basic assumption of resource dependence theory is the responsibility of the directors to assure the firm's survival. Grounded in this theory, the firm's ability to acquire and maintain resources is the key to ensuring the firm's survival [20].

A mix of expertise, experience, and knowledge of the board of directors can influence corporate decision-making. Resource dependence theory is used in this study to explain firm performance and its association with board capital.

2.2 Board Capital and Firm Performance

In recent years, corporate board structure and its impact on firm behaviour have been global issues. The following subsections discuss literature in formulating hypotheses relating board capital to firm performance in Malaysia.

2.3 Gender and Firm Performance

Firms' values tend to get elevated with female directors on board [28, 29]. Female directors contribute different perspectives, cultures and approaches to working for the firm [30]. Thus, a diversified opinion enhances the board's decision-making [31]. According to Munir, Rangel [32], female directors differ from male directors in handling tasks, analysing, and processing information. Female directors encourage creativity and innovation, resulting in better firm performance [33].

According to Pfeffer and Salancik [20], resource dependence theory asserts that a firm's external environment affects its performance, where diverse boards are necessary to fulfil its many functions. Integrating the differing skills and knowledge of male and female directors is crucial for decision-making. Female directors on the corporate board affect the decision-making that improves firm performance. Hence, the following hypothesis is established:

Hypothesis 1: There is a positive association between the proportion of female directors on the board and firm performance.

2.4 Interlocking Directorate and Firm Performance

Firms better able to match their interlocking directorate with their environmental needs may receive greater performance benefits [17]. The interlocking directorate improves performance by relaxing resource constraints [20].

According to Gnyawali and Madhavan [34], corporate actions and executives' decisions are influenced and constrained by their relationship to the external environment. In this context, interlocking directorates refer to a situation where an individual simultaneously sits on the board of two companies. This is per resource dependence perspective, where interlocking directorates are viewed as a mechanism of co-optation [20, 35]. As Uzzi [36] highlighted, directorate ties have several benefits, such as reducing the transaction cost by gaining trusted information transfer and joint problem-solving arrangements.

Interlocking directorates provide social capital to essential parts of the environment. The interlocking directors exchange the knowledge and experiences gained from their directorate ties with other firms. Understanding other board members' directorate ties to other organisations strengthen board members' relationships and trust and enhance firm performance [37, 38]. This study proposes that interlocking directorates increase firm performance. Hence, the following hypothesis is established:

Hypothesis 2: There is a positive association between the interlocking directorate and firm performance.

3. Research Methodology

3.1 Selection of Sample, Data Collection Procedure, and Data Analysis Technique

This study employs the quantitative approach where the secondary data are gathered from the annual reports of listed firms on Main Market of Bursa Malaysia to measure the dependent variable (firm performance), the independent variables (gender and interlocking directorate), and the control variables (firm leverage, firm age, and board size). Using a stratified random sampling approach, 161 sample firms listed on Bursa Malaysia were selected. The year 2019 is chosen because of the introduction of Corporate Strategic Priorities (2017-2020) and the Malaysian Code of Corporate Governance (MCCG) 2017. This study adopted multiple linear regression analysis as the statistical method to assess the research model.

3.2 Model Specification

Estimates of the regression equation are as follows:

$$\begin{aligned}
 \text{FIRM PERFORMANCE} &= \beta_0 + \beta_1 \text{GENDER} + \beta_2 \text{INTERLOCKING DIRECTORATE} + \beta_3 \text{FIRM LEVERAGE} + \beta_4 \text{FIRM AGE} \\
 &+ \beta_5 \text{BOARD SIZE} + \varepsilon
 \end{aligned}$$

where:

FIRM PERFORMANCE	Firm performance
GENDER	Gender
INTERLOCKING DIRECTORATE	Interlocking directorate
FIRM LEVERAGE	Firm leverage
FIRM AGE	Firm age
BOARD SIZE	Board size
β_0	Constant
$\beta_1 - \beta_5$	Regression coefficient
ε	Error term

3.3 Measurement of the Dependent Variable

Firm performance is measured by Tobin's Q, defined as the sum of the market value of equity (share price multiplied by the number of ordinary shares in issue at fiscal year-end) and the book value of debt divided by the book value of total assets. Tobin's Q is used in prior studies as a proxy for firm performance, for example, Isidro and Sobral [39], Green and Jame [40], and Carter, D'Souza [41].

3.4 Measurement of the Independent Variables

Gender diversity is measured based on the proportion of female directors on the board [42-44].

The interlocking directorate is measured by the sum of board directorships that the directors hold at other firms divided by the board size [23, 45, 46].

3.5 Measurement of the Control Variables

The control variables comprising firm leverage, firm age, and board size are measured for each firm.

Firm leverage is measured by the book value of debt divided by the total assets [7, 23, 47].

Firm age is measured by the number of years established by a firm [7, 23, 48].

Board size is measured by the number of directors sitting on the board of an individual firm [49-51].

4. Results and Discussions

4.1 Descriptive Statistics of Dependent Variable

The mean value of Tobin's Q of public listed firms in Malaysia is 2.365. The mean value of Tobin's Q is greater than one, indicating that Malaysia's public listed firms show good firm performance.

4.2 Descriptive Statistics of Independent Variables

The average of female directors on the board is 19.600%. The findings also show that the average number of directorships is 1.312.

4.3 Descriptive Statistics of Control Variables

The mean values of firm leverage, firm age and board size are 21.500%, 30.630 years, and 7.940, respectively.

Table 1 Descriptive Statistics of Dependent, Independent and Control Variables (n=161)

Variables	Minimum	Maximum	Mean	Standard Deviation
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Firm Performance	0.050	66.910	2.365	7.731
Gender	0.000	0.500	0.196	0.135
Interlocking Directorate	0.000	3.830	1.312	0.895
Firm Leverage	0.000	1.160	0.215	0.204
Firm Age	2.000	113.000	30.630	20.197
Board Size	4.000	15.000	7.940	2.098

4.4 Pearson's Correlation Test

The highest correlation of 0.328 is reported between gender and interlocking directorate. According to Gujarati (2003), multicollinearity is a problem when the correlation coefficient between two variables is more than 0.800. None of the variables is correlated at 0.800 and above, indicating that multicollinearity may not be a concern in this study [52, 53].

Table 2 Pearson's Correlation Test

Variables	1	2	3	4	5	6
1. Gender	1					
2. Interlocking Directorate	.328**	1				
3. Firm Leverage	-0.013	0.112	1			
4. Firm Age	.166*	.190**	-.189**	1		
5. Board Size	.181*	.131*	0.129	0.030	1	
6. Firm Performance	-.190**	-0.126	-.153*	-.139*	-0.095	1

Note: Association of ** represents correlation is significant at the 0.01 level and * represents correlation is significant at the 0.05 level. The result is based on a one-tailed test

4.5 Hypothesis Testing Procedures

Multiple linear regression analysis is a statistical method utilised to determine the relationship between one dependent variable and one or more independent variables [53]. Before undertaking the regression analysis, this study examines whether the regression assumption is fulfilled.

4.6 Testing the Assumptions of Multiple Linear Regression

Before carrying out a multiple regression analysis, it is important to note that some general assumptions are required for this analysis. These assumptions are related to the residual terms that must be independent and identically normally distributed with a uniform variance.

First, the normality of the variables is examined using a P-P residual plot. The results of the normality test show data spread around and near the diagonal line. This shows the research data is normally distributed.

Second, the scatterplot is used to check the homogeneity of variance of the residuals (homoscedasticity). A horizontal line with equally spread points shows homoscedasticity. The variance of the error is constant. This indicates that heteroscedasticity may not be a concern in the regression model.

Lastly, all variables have variance inflated factor (VIF) values below 10, indicating multicollinearity may not be a concern in the regression model.

4.7 Multiple Linear Regression Analysis

To test the hypotheses of the study, the multiple linear regression analysis is employed using the firm performance as the dependent variable and independent variables comprising gender diversity and interlocking directorate as independent variables. The firm leverage, firm age and board size are control variables.

Table 3 presents the results of the regression analysis. Based on the regression results, the model is valid, meaning that at least one of the variables is a significant determinant of the firm performance (F value= 2.774, p<0.050). In addition, the variables included in the model can explain 5.3% of the variance in the firm performance, as shown by the Adjusted R Squared.

Table 3 Multiple Linear Regression Analysis Results

Variables	Coefficients		Standard Error	t-value	p-value
	Unstandardised	Standardised			
(Constant)	8.538		2.564	3.330	0.001
Gender	-8.815	-0.154	4.747	-1.857	0.033
Interlocking Directorate	-0.210	-0.024	0.721	-0.291	0.386
Firm Leverage	-6.607	-0.174	3.038	-2.175	0.016

Firm Age	-0.054	-0.141	0.031	-1.747	0.042
Board Size	-0.138	-0.038	0.292	-0.474	0.318
Adjusted R Squared	0.053				
F-value	2.774				
p-value	0.020				
Durbin Watson	2.032				
No. of Observations	161				

Note: Associations ** and * denote 0.01 and 0.05 significance levels, respectively. One-tailed probabilities are used for the tests of the variables since the associated hypothesis are directional.

4.8 Discussions

This study examines the effects of board capital on firm performance. The proportion of female directors on the board and firm performance is statistically significant at a 5% level of significance ($\beta=-0.154$, $t=-1.857$, $p=0.033$). Contrary to the hypothesised positive association of Hypothesis 1, there is a statistically significant and negative association between the proportion of female directors on the board and firm performance. The findings of this study show that gender diversity decreases firm performance. The result shows that differences in females' values would not benefit the firms because they could not perform effectively due to gender stereotypes [54]. The appointment of female directors for affirmative action reasons or to appease special interest groups perceive female directors as less valuable board members [55]. The gender stereotype biases inhibit trust, causing poor communication among board members [56]. Therefore, female directors are less likely to take the initiative to express their concerns. As a result, the hesitancy of female directors to voice their opinions impedes improvement in firm performance.

On the other hand, Table 3 displays that the interlocking directorate and firm performance are not statistically significant ($\beta=-0.024$, $t=-0.291$, $p=0.386$). The findings of this study show that interlocking directorates are not associated with firm performance. Therefore, Hypothesis 2 is not supported. The result implies that the interlocking directorate would not profit the firms because they could not execute effectively due to the conflicts of interest arising from the similarities in the firms [57].

5. Implications and Conclusion

5.1 Implications

The findings from this study are essential for advancing the stock of knowledge on board capital and providing theoretical and practical implications.

This study finds that gender diversity decreases firm performance, and interlocking directorates are not associated with firm performance. The findings do not support that board capital contributes the required resources to improve firm performance. The Malaysian government's affirmative action in appointing directors causes severe scrutiny, gender stereotypes, and evaluation bias. Tokenism impedes the board's contribution to improving firm performance [58, 59]. When the interlocking directorates share the same operating environment, the board ties cause similarities in firms that promote imitation, which is unlikely to improve firm performance [60]. The board of directors is the primary linkage mechanism for connecting a firm with a source of external dependency. The results suggest selecting a director with relevant knowledge and perspective rather than simply meeting the number of board seats. The firm can reduce dependency and gain valuable resources by choosing a director with appropriate knowledge, skills, influence, or networks with external dependency sources. Thus, findings suggest that the resource dependence theory is the critical determinant of board composition, where matching board composition to external needs accrues specific benefits to firm performance.

The findings of this study have several practical implications for firms, policymakers, and regulators. From a firm perspective, the results will interest the board of directors, especially the nomination committee, which oversees directors' selection and assessment.

The findings of this study are of interest to policymakers such as Bursa Malaysia and the Securities Commission Malaysia. The policymakers may consider providing a more extended transition period for fully adopting the quota regulation. Furthermore, continued efforts by the government through various campaigns are needed to eliminate the public's negative perceptions of female directors. These efforts develop a board culture in which dissenting voices will be heard and considered. Nonetheless, the policymakers should continue advocating and enforcing board diversity to enhance firm performance. Board capital is unlikely to improve firm performance unless Malaysian boardrooms include a good mix of directors.

5.2 Concluding Remarks

This examination of firm performance has enhanced the understanding and knowledge of its association with board capital. With the increasing external pressure, the board of directors must strengthen their accountability. A sound board

structure is essential to ensure the accountability of firms. This study contributes to the debate by providing insights into how board capital affects the performance of Malaysian firms.

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Appendix

Descriptive Statistics of Dependent, Independent and Control Variables Descriptives

	N	Descriptive Statistics							
		Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Kurtosis Statistic		
fp	161	.05	66.91	2.3648	7.73113	7.182	.191	55.652	.380
gen	161	.00	.50	.1960	.13514	.169	.191	-.776	.380
int	161	.00	3.83	1.3119	.89526	.582	.191	-.185	.380
firmlev	161	.00	1.16	.2148	.20352	1.248	.191	2.188	.380
firmage	161	2	113	30.63	20.197	1.327	.191	2.214	.380
bs	161	4	15	7.94	2.098	.650	.191	.161	.380
Valid N (listwise)	161								

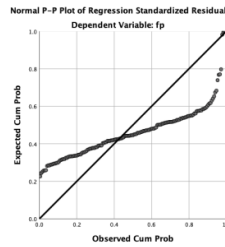
Pearson's Correlation Test

Correlations

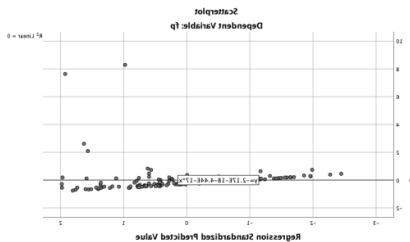
		gen	int	firmlev	firmage	bs	fp
gen	Pearson Correlation	1	.328**	-.013	.166*	.181*	-.190**
	Sig. (1-tailed)		.000	.434	.018	.011	.008
	N	161	161	161	161	161	161
int	Pearson Correlation	.328**	1	.112	.190**	.131*	-.126
	Sig. (1-tailed)	.000		.079	.008	.049	.056
	N	161	161	161	161	161	161
firmlev	Pearson Correlation	-.013	.112	1	-.189**	.129	-.153*
	Sig. (1-tailed)	.434	.079		.008	.051	.026
	N	161	161	161	161	161	161
firmage	Pearson Correlation	.166*	.190**	-.189**	1	.030	-.139*
	Sig. (1-tailed)	.018	.008	.008		.351	.039
	N	161	161	161	161	161	161
bs	Pearson Correlation	.181*	.131*	.129	.030	1	-.095
	Sig. (1-tailed)	.011	.049	.051	.351		.114
	N	161	161	161	161	161	161
fp	Pearson Correlation	-.190**	-.126	-.153*	-.139*	-.095	1
	Sig. (1-tailed)	.008	.056	.026	.039	.114	
	N	161	161	161	161	161	161

** . Correlation is significant at the 0.01 level (1-tailed).
 * . Correlation is significant at the 0.05 level (1-tailed).

P-P Plot of Regression Standardized Residual



Scatterplot



Variance Inflation Factor

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	8.538	2.564		3.330	.001		
	gen	-8.815	4.747	-.154	-1.857	.065	.860	1.163
	int	-.210	.721	-.024	-.291	.772	.850	1.176
	firmlev	-6.607	3.038	-.174	-2.175	.031	.926	1.080
	firmage	-.054	.031	-.141	-1.747	.083	.909	1.100
	bs	-.138	.292	-.038	-.474	.636	.946	1.057

a. Dependent Variable: fp

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	gen	int	firmlev	firmage	bs
1	1	4.826	1.000	.00	.01	.01	.01	.01	.00
	2	.498	3.112	.00	.03	.00	.66	.10	.00
	3	.269	4.239	.01	.39	.18	.01	.38	.00
	4	.216	4.731	.01	.36	.79	.00	.02	.01
	5	.160	5.494	.07	.21	.01	.31	.45	.11
	6	.032	12.317	.92	.00	.00	.00	.04	.87

a. Dependent Variable: fp

Multiple Linear Regression Analysis Results

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	int, firmlev, bs, firmage, gen ^b		Enter

a. Dependent Variable: fp

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.287 ^a	.082	.053	7.52535	1.995

a. Predictors: (Constant), int, firmlev, bs, firmage, gen

b. Dependent Variable: fp

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	785.487	5	157.097	2.774	.020 ^b
	Residual	8777.777	155	56.631		
	Total	9563.264	160			

a. Dependent Variable: fp

b. Predictors: (Constant), int, firmlev, bs, firmage, gen

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.538	2.564		3.330	.001
	firmlev	-6.607	3.038	-.174	-2.175	.031
	firmage	-.054	.031	-.141	-1.747	.083
	bs	-.138	.292	-.038	-.474	.636
	gen	-8.815	4.747	-.154	-1.857	.065
	int	-.210	.721	-.024	-.291	.772

a. Dependent Variable: fp

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-3.0571	6.7496	2.3648	2.21569	161
Residual	-5.65444	62.38175	.00000	7.40683	161
Std. Predicted Value	-2.447	1.979	.000	1.000	161
Std. Residual	-.751	8.290	.000	.984	161

a. Dependent Variable: fp