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Unveiling the Link between Corporate Board Attributes, Board Behavior, and Financial Leverage: Insights from Malaysia

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Abstract: The aim of this paper is to examine the characteristics and conduct of boards in non-financial Malaysian firms, with a particular emphasis on the companies' financial leverage, using panel data spanning from 2012 to 2018. Overall, the study reveals that the relationship between board attributes and a firm's financial leverage is significant, but mixed. Notably, we find that extremely small or large boards are ineffective in maintaining the optimal financial leverage level that benefits all stakeholders. Our study concludes that board independence is negatively correlated with financial leverage, whereas the tenure of board members is negatively associated with financial leverage. Additionally, board diversity exhibits a statistically significant and positive correlation with financial leverage. Currently, the Malaysian corporate governance code advocates announcing regulations to regulate corporate structures.

Keywords: board attributes; board behavior; financial leverage; board independence; board diversity



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1. Introduction

Research has demonstrated that the announcement of a dividend payout policy and the role of board attributes and financial leverage in family-owned businesses are significant topics in financial management (Verhezen and Abeng 2022). The corporate board, being the most influential management body in corporate firms, plays a crucial role in determining dividend payout policy. As a result, there has been a growing interest in studying the relationship between corporate board attributes and firm dividend payout policy, with particular attention paid to the role of financial leverage. While previous research studies have mostly focused on the direct relationship between corporate board attributes and dividend payout policy, recent studies have emphasized the importance of examining the indirect effect of corporate board attributes on dividend payout policy, which may be influenced by factors such as financial leverage. This has led to ambiguity about the direct relationship between corporate board attributes and dividend payout policy, particularly from the perspective of developing and developed countries (Al-Najjar and Taylor 2008). This study contributes to the existing literature by investigating the relationship between corporate board attributes, including board independence, board size, and board tenure, and dividend payout policy while considering the role of financial leverage. Furthermore, the study examines corporate board behavior attributes, such as board members' participation, diversity, and psychological attitudes in relation to financial leverage. The study utilizes dividend payout records at Bursa Malaysia as a case study to provide insights into the factors that influence dividend payout policy in family-owned businesses.

Financial leverage is a crucial factor in increasing shareholders' wealth. Well-managed corporate board attributes also contribute to the aggregate market value of a company (Michelon and Parbonetti 2012; Tahir et al. 2020a; Rouf 2011). However, greater financial leverage can reduce a company's worth due to an increased bankruptcy threat. Therefore, it is crucial for every company to have comprehensive corporate board attributes and the best capital structure to improve the market worth of the company. Corporate board attributes refer to the system by which organizations are absorbed and measured. Current developments in economic theories suggest that the corporate board of directors is a significant part of the governance structure of a big business company (Fama and Jensen 1983; Williamson 1983). It is not surprising that government company laws require corporate firms to be managed under the leadership of a board of directors (Baysinger and Butler 1985).

Corporate board attributes, such as board size, independence, tenure, and diversity, have been extensively studied in business governance research due to their significant influence on decision making, monitoring, and future planning within firms (Raheja 2005). Prior research has focused on the impact of these attributes on various aspects of firm performance, including dividend payout policy (Al-Najjar and Kilincarslan 2016; Ghosh and Sirmans 2006; Hao et al. 2014; Khan et al. 2016; Ntim et al. 2017), financial leverage (Tahir et al. 2020b; Connelly et al. 2012; Jiraporn et al. 2012), and the relationship between financial leverage and dividend policy (Abor and Bokpin 2010; Al-Kuwari 2009; Amidu and Abor 2006). Examining the impact of corporate board attributes on financial leverage is crucial as these attributes are responsible for maintaining a firm's performance and financial stability (Abeysekera 2010; Chaganti et al. 1985; Dallas 2001). Resource dependency theory suggests that corporate boards with more professionals and experts can improve firm value and financial decision-making measures (Abeysekera 2010; Chaganti et al. 1985; Dallas 2001). Additionally, having a larger number of board members may enhance monitoring and decision-making abilities (Hillman and Dalziel 2003; Zahra and Pearce 1989), while diverse board members may offer valuable viewpoints for problem solving (Hillman et al. 2002). Furthermore, board behavior and attributes play a crucial role in promoting sustainable practices and corporate social responsibility (CSR) (Masud et al. 2019; Bae et al. 2021). A sound and balanced board can help to promote climate finance and control corruption (Bae et al. 2021; Masud et al. 2023). Ethical corporate practices, such as shariah practices, and a diverse board can also improve firms' financial decisions (Masud et al. 2019; Jahid et al. 2022). The collective behavior of the board defines the corporation's policies and strategies, which significantly impact financial leverage and stability (Rahman et al. 2021, 2023). The above discussion shows that a sound and responsible corporate board is crucial for effective and efficient decision making, determining sound dividend and leverage policies, financial stability, and predicting financial risk and tolerance levels. Therefore, studying corporate board attributes and their impact on firm performance is essential for effective corporate governance.

This study investigates the use of agency theory and resource dependence theory in Malaysian non-financial firms and explores the correlation between corporate board attributes and financial leverage. The findings of this research make a significant contribution to the existing body of knowledge. The study indicates that corporate board attributes are effective in managing and controlling financial leverage, leading to improved firm performance. Additionally, a large board size proves to be effective in maintaining and controlling financial leverage while enhancing firm performance. The study concludes that the optimal board size is between 3 and 15 directors. The Malaysia Code of Corporate Governance (MCCG) recommends a minimum of 3 directors for small firms and more than 8 directors for large firms, and therefore, the study suggests that policymakers limit the size of a board to 5–14 directors. Our research also reveals that the presence of independent directors on the corporate board is vital in maintaining and controlling financial leverage and unbiased decision making. The optimal ratio of independent directors is between 7.69% and 88.89% of the total number of board members. The Malaysia Code of Corporate Governance mandates at least 50% independent directors on a board, and thus, the study

recommends that policymakers require more than 60% of directors on a corporate board to be independent and professionally skilled. However, because most firms in Malaysia are family-owned (Credit Suisse Research Institute (CSRI)), and most directors therefore belong to the families that own the firms, the tenure of board members is typically high in the country (Benjamin et al. 2016).

The subsequent section provides a review of the correlation between corporate board attributes and financial leverage, while the Section 3 describes the statistical analysis technique that we used. The Section 5 discusses the conclusions and implications, and the final section presents the hypothesis and future research directions.

2. Theoretical Discussion, Literature Review, and Hypothesis Development

2.1. Theoretical Discussion

In recent years, there has been a growing interest in exploring the relationship between board attributes and financial leverage. Scholars have employed various theoretical frameworks to explain this relationship. However, a large majority of these studies have utilized agency theory as the best-suited theoretical framework to describe board attributes (Jensen and Meckling 1976; Harjoto and Jo 2011; Hillman and Dalziel 2003; de Villiers et al. 2011). According to agency theory, conflicts arise between agents and principals due to uncertainties in business operations. These conflicts are attributed to the fact that agents may prioritize their own interests over those of the principals they represent. In this context, it is essential to establish a balanced financial leverage policy that considers the impact of financial performance and profitability on a firm's capital structure. The capital structure of a firm is highly influenced by the company's financial performance and profitability. Hence, the need to strike a balance between management and owner interests is crucial (Jensen and Meckling 1976; Harjoto and Jo 2011).

An effective and efficient corporate board can mitigate agency problems and ensure the welfare of diverse stakeholders (Masud et al. 2018; de Villiers et al. 2011). The corporate board plays a vital role in ensuring that the company is run in the best interests of its shareholders and stakeholders. The board is responsible for making critical decisions that affect the company's financial performance and, ultimately, its capital structure. Therefore, the board must comprise members with diverse skills and expertise to ensure that the company is managed effectively. The presence of non-executive directors (NEDs) has been found to be an effective strategy for minimizing agency conflicts (Baysinger and Butler 1985; Fama and Jensen 1983). NEDs bring an independent perspective to the boardroom and can help reduce the influence of executive directors on the board. This, in turn, can help to reduce the conflicts that may arise between the board and the company's management.

Given the importance of corporate boards in mitigating agency problems and ensuring the welfare of diverse stakeholders, the present study incorporates agency theory to examine the relationship between board attributes and financial leverage in Malaysian non-financial firms. The study aims to contribute to the existing literature on this subject and provide insights that can inform policymakers and practitioners in the field. By examining the role of board attributes in shaping a firm's financial leverage policy, the study seeks to shed light on the factors that contribute to the efficient management of companies in the Malaysian context.

2.2. Corporate Board Size and Financial Leverage

Jensen and Meckling (1976) have argued that in order to develop a theory of ownership structure for a firm, it is important to consider three main factors: property rights, agency, and finance. This theory helps to support the rights of the owner and determine the level of employee empowerment within the firm. By taking these factors into account, it is possible to understand the complex relationships that exist within a firm and how they can be managed to achieve optimal outcomes. By definition, board attributes, such as board size, board independence, board member tenure, and board diversity, are determined by the organization's scope (Yermack 1996). Furthermore, Boone et al. (2007) have noted that

board size increases with the growth and expansion of companies. Previous studies have shown mixed results regarding the relationship between board size and financial leverage. On the one hand, [Vitolla et al. \(2019\)](#) found that a large board size harms financial leverage. Companies with larger board sizes tend to have higher financial leverage than those with smaller board sizes, suggesting that companies with larger board sizes are more likely to pursue debt financing than equity financing ([Jensen 1986](#)). From this perspective, [Zahra and Pearce \(1989\)](#) argued that larger corporate boards are more esteemed due to their vast data, assets, and external relations. Thus, the following hypothesis is proposed.

H1. *There is a positive association between corporate board size and a firm's financial leverage.*

2.3. Corporate Board Independence and Financial Leverage

Numerous studies have investigated the relationship between board independence and financial leverage. Some studies have found that higher levels of board independence are associated with lower levels of financial leverage, indicating that independent boards are more cautious in taking on debt ([Adams and Mehran 2003](#); [Yermack 1996](#)). However, other studies have found no significant relationship between board independence and financial leverage ([Lins 2003](#); [Vafeas 2003](#)). These mixed findings may be due to differences in sample size, industry, and measurement of board independence. In addition to board independence, board size has also been examined in relation to financial leverage. Larger boards have been found to be associated with higher levels of financial leverage, indicating that larger boards may be more willing to take on debt ([Vitolla et al. 2019](#); [Boone et al. 2007](#)). However, other studies have found no significant relationship between board size and financial leverage ([Chang et al. 2014](#)).

Board diversity, particularly gender diversity, has also emerged as an important factor in the relationship between corporate boards and financial leverage. Some studies have found that greater gender diversity on boards is associated with lower levels of financial leverage ([Carter et al. 2003](#); [Faccio et al. 2016](#)). However, other studies have found no significant relationship between gender diversity and financial leverage ([Randoy et al. 2006](#); [Tahir et al. 2020a](#)). Overall, while there is no clear consensus in the literature on the relationship between corporate board attributes and financial leverage, there is evidence to suggest that board independence may play a role in shaping a firm's financial decisions. Thus, the following hypothesis is proposed.

H2. *There is a positive association between corporate board independence and a firm's financial leverage.*

2.4. Corporate Board Tenure and Financial Leverage

Long tenure makes directors more sovereign and less vulnerable to top administration burdens. Board director tenure within a company is associated with better expertise. Significant information about the organization and its business environment is actively monitored, and a director with a long tenure can provide better observations. The management-friendliness hypothesis proposes that long tenures make board members bond better with the administration at the expense of shareholders ([Vafeas 2003](#)). Long tenured board directors can also decrease intragroup communications, thus decreasing the quality of choices and potentially pushing them to obtain higher leverage ([Ben-Amar et al. 2013](#)). Furthermore, board directors with long tenures can be influenced by their own opinions and arrangements, and their data could ultimately become a less appreciated resource in the observing process. [Abbas et al. \(2018\)](#) have noted an association between financial leverage and corporate board member tenure.

H3. *There is a positive association between corporate board tenure and a firm's financial leverage.*

2.5. Corporate Board Gender Diversity and Financial Leverage

The diversity of corporate boards plays an important role in financial policies, and gender diversity has a certain association with performance. Carter et al. (2003) concluded that further significant research has indicated that gender heterogeneity and performance are not related (Randoy et al. 2006). The implication here is that women and minority directors do not participate in the systems of associations between different leaders which typically develop in their professional practices. The question then arises whether female corporate board members would try to decrease a company's financial leverage to reduce financial risk, thus pointing to the negative impact of female membership on financial leverage. However, previous studies (Chang et al. 2014) have demonstrated that the number of companies in developed countries with low financial leverage increased with the induction of female board members, and that this may push them to obtain higher financial leverage. Thus, board diversity is related to financial leverage. Firms in emerging economies, on the other hand, are usually more financially self-conscious than those in developed economies. Board director diversity includes gender differences within a corporate board. There is a growing belief that a gender-diverse corporate board would be capable of advancing the effectiveness of the corporate board. In this regard, Norway was the first country in the world to mandate that at least 40% of the members of a board of directors must be women (Tahir et al. 2020b). Female directors are more likely to support the firm's management, employing their skills and knowledge in legal matters, HRM, announcements, and public relationships more than their male counterparts (Zelechowski and Bilimoria 2004). The promotion of board members to senior executive positions can lead to the "glass ceiling effect," which tends to hinder the advancement of women and minority directors (Farrell and Hersch 2005; Hillman et al. 2002). Hillman et al. (2002) provide evidence that the majority of female and minority directors come from non-business backgrounds and rise to the top positions of directorship by demonstrating exceptional professional and institutional competence. Hence, the following hypothesis is proposed.

H4. *There is a positive association between corporate board gender diversity and a firm's financial leverage.*

3. Materials and Methods

3.1. Sample Selection, Data Collection, and Variable Measurement

The key focus of this study is non-financial companies registered on BURSA Malaysia. Financial firms are excluded from this research due to their unique structure and features. Secondary sources were used for the collection of data, and these included both qualitative and quantitative data that could be used for both descriptive and explanatory research (Kervin 1999), i.e., primary data (Cooper and Schindler 2003). Secondary data refers to data that already exist, such as available statistics, books, and internal reports kept by companies (Veal 2005). In this study, the firms' annual reports were the main source used to gather corporate board attribute data. The annual reports were downloaded from either the firms' websites or from BURSA Malaysia's official website. Unpublished annual reports were collected manually from the companies by request. Ultimately, 7 years of annual reports from 203 out of 796 possible firms were downloaded on the basis of the availability of data from 2012 to 2018. Board attribute data were collected manually while financial data were collected from Thomson Reuters DataStream. The data collection procedures are summarized in Table 1. Additionally, the statistics for this research concern Malaysian non-financial firms during the period 2012 to 2018.

Table 1. Variable definitions and measurements.

Variable	Definition and Measurement	Reference
FLEV	Total debt divided by total assets	(Al-Najjar and Kilincarslan 2016; Byoun et al. 2016)
B_SIZE	Total number of directors serving on a board	(Byoun et al. 2016; Pahi and Yadav 2018)
B_IND	Total number of independent board members on a board	(Pahi and Yadav 2018; Byoun et al. 2016; Abor and Fiador 2013)
B_TEN	Average job duration of board members on a board	(Byoun et al. 2016)
B_DIV	Number of female board members on a board divided by the total number of board members	(Byoun et al. 2016; Saeed and Sameer 2017)

3.2. Model Specification

We utilized the following regression model to examine the relationships between board size, board independence, board tenure, board diversity, and financial leverage:

$$FLEV_{ijt} = a_{ijt} + \beta_1 B_SIZE_{ijt} + \beta_2 B_IND_{ijt} + \beta_3 B_TEN_{ijt} + \beta_4 B_DIV_{ijt} + e_{ijt}$$

(ijt: period and firm indicator; ϵ : error term).

4. Data Analysis

4.1. Descriptive Analysis

Table 2 presents the summary statistics of the model. The results indicate that Malaysian non-financial firms exhibit a low level of financial leverage, with a mean of 16.07%. Some non-financial firms have also reported losses in their activities. In terms of board size, Malaysian non-financial firms have comparatively smaller boards, with a mean and standard deviation of almost 7.3384 (1.83) board members, which is less than the average for Middle Eastern companies, where the mean is 11. The largest boards have a maximum of 15 board members, while the smallest ones have 3 board members (Ghabayen et al. 2018). All of the non-financial firms have adhered to the guidelines set by the Securities Exchange Commission of Malaysia (SC) and the Malaysian Code of Corporate Governance (MCCG), which recommend more than eight board members for large firms and at least three directors for small firms.

Table 2. Summary statistics.

	Obs	Mean	Ste. Dev	Min	Max
FLEV	1.421	0.1607	0.1463	0	0.786
B_SIZE	1.421	7.3384	1.8343	3	15
B_IND	1.421	44.5811	12.470	7.69	88.89
B_TEN	1.421	9.5171	4.8671	1	29.44
B_DIV	1.421	0.1086	0.1213	0	0.5712

Notes: B_SIZE denotes the number of board members on a board; B_IND denotes the number of independent board members on a board; B_TEN denotes the tenure of board members on a board; B_DIV denotes the corporate board gender diversity; FLEV denotes financial leverage.

Regarding board independence, Malaysian non-financial firms have a comparatively large number of independent board members, with a mean and standard deviation of almost 44.85 (12.47). All of the non-financial firms have complied with the SC guidelines which recommend that more than 50% of board members for all kinds of firms should be independent directors.

In terms of board tenure, the board members of Malaysian non-financial firms have a comparatively high job tenure, with a mean and standard deviation of almost 9.52

(4.86). Concerning board diversity, Malaysian non-financial firms exhibit good diversity, but women are insufficiently represented as board members, with a mean and standard deviation of almost 0.1086 (0.1213). All of the non-financial firms have followed the guidelines set by the SC and MCCG, which recommend that the boards of large firms must have at least 33% female board members.

4.2. Panel Data

Before running the models, we applied several diagnostic tests, including a normality test. Normality refers to “the degree to which the distribution of sample data corresponds to a normal distribution” (Hair et al. 2010). The normality of the data was assessed using a Hausman test, where the probability of chi-squared was 0.5553. This suggests that the null hypothesis cannot be rejected, and we can accept that the data are normal.

To test for heteroscedasticity, this study also used fixed and random effects. The tests were effective in adjusting for heteroscedasticity. For the multicollinearity test, we used a variance inflation test (VIF), in which the values of the included variables should be below 10 (Studenmund 2006). This study’s VIF was less than 1.59, indicating no multicollinearity between the variables. Additionally, we used a correlation matrix. Dohoo et al. (1997) argued that multicollinearity occurs at the 0.9 level or greater of a correlation coefficient, as is demonstrated in Table 3 by Chen and Rothschild (2010). This study utilized fixed and random effects to adjust for normality, as Table 4 shows.

Table 3. Correlation matrix.

		1	2	3	4	5
1	FLEV	1				
2	B_SIZE	0.0360	1			
3	B_IND	−0.0486	−0.3591	1		
4	B_TEN	−0.0119	−0.0124	−0.0844	1	
5	B_DIV	0.0591	−0.0306	−0.0989	−0.0085	1

Notes: B_SIZE denotes the number of board members on a board; B_IND denotes the number of independent board members on a board; B_TEN denotes the tenure of board members on a board; B_DIV denotes the corporate board gender diversity; FLEV denotes financial leverage.

Table 4. Multivariate Analysis.

Model	Pooled (1)		Fixed Effect (2)		Random Effect (3)	
	Coef	t	Coef	t	Coef	z
CONSTANT	0.4406	5.00 ***	0.2002	7.25 ***	0.0273	6.93 ***
B_SIZE	−0.0242	−3.48 ***	−0.0045	−1.85 **	−0.002	−1.42
B_IND	−0.0014	−1.37	0.00001	0.04	−0.00002	−0.10
B_TEN	0.0061	2.50 ***	−0.0015	−1.68 *	−0.0013	−1.52
B_DIV	0.2342	2.38 ***	0.07047	2.13 **	0.0696	2.25 **
R ²	0.0182		0.0086			0.0084
Prob F	***		**			*
Obs	1.421		1.421			1.421
Number G			203			203
Years			Yes			Yes

Notes: B_SIZE denotes the number of board members on a board; B_IND denotes the number of independent board members on a board; B_TEN denotes the tenure of board members on a board; B_DIV denotes the corporate board gender diversity; FLEV denotes financial leverage; ***, **, and * indicate that correlations among variables are significant at the 0.01, 0.05, and 0.10 levels, respectively. ***, **, and * indicate significance at the 1, 5 and 10% levels, respectively (two-tailed).

For the panel data, a Hausman test was used (see Table 5) to cover the missing values and determine whether a fixed effect model or a random effect model would be more suitable. The null hypothesis assumes that the unique errors are not correlated with the

regressors. If the p-value is insignificant (Prob > Chi2 is more than 0.05), the null hypothesis is accepted, and the random effect model is deemed more suitable. If the p-value is significant, the null hypothesis is rejected and the hypothesis is accepted, indicating that the unique errors are correlated with the regressors. Therefore, the random effect model is appropriate. If the results of the Hausman specification test are significant, a fixed effects should be used, and, according to Torres-Reyna (2007), the model should be checked for the effects of the year. STATA 14.2 provides a command to check the effect of the time period.

Table 5. Hausman test.

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed	Random	Difference	S.E.
B_SIZE	−0.0045	−0.0031	−0.0013	0.0009
B_IND	0.00001	−0.00002	0.00003	0.00006
B_TEN	−0.0015	−0.00127	−0.0002	0.0003
B_DIV	0.0696	0.0696	0.00079	0.0119

Notes: b = consistent under Ho and Ha; obtained from xtreg. B = inconsistent under Ha, efficient under Ho; obtained from xtreg. Test: Ho: difference in coefficients not systematic. $\chi^2(4) = (b - B)'[(V_b - V_B)^{-1}] (b-B) = 3.02$. Prob > $\chi^2 = 0.5553$.

5. Results and Discussion

Effective boards should prioritize both the monitoring and counseling functions in the firm. Thus, effective boards are expected to maintain financial leverage. In business environments with concentrated ownership, such as in Malaysia and other emerging economies, ownership can be a useful tool to align the interests of executives and principals, as has been proposed by Barako et al. (2006). In other words, the ownership structure may help to resolve the conflicts between executives and principals. However, conflicts may shift from executives and principals to the majority and minority. Therefore, the board of directors may be a better mechanism to align the interests of the majority and minority shareholders. Boards are thus designed and structured to protect the interests of stockholders (Jensen and Meckling 1976; Fama 1980; Hair et al. 1998). An effective corporate board can set a firm’s agenda and plans in the best interest of the company. In the case of Malaysian non-financial firms, the boards of moderate size were found to be more effective in maintaining financial leverage, protecting the interests of all stakeholders, and promoting the development of their company. The monitoring function can be efficient if the board is realistic about the complexity of non-financial firms in emerging economies.

The results of the multivariate analysis are shown in Table 4. In models (1) and (2), board size has a significant and negative impact on financial leverage, but in model (3), the relationship is negative and statistically insignificant. Therefore, increases and decreases in board size affect financial leverage. This leads to the general conclusion that the size of the board of directors is effective in maintaining financial leverage in non-financial firms, an observation which is consistent with previous findings (Vitolla et al. 2019; Chancharat et al. 2012; Jensen 1986).

In models (1) and (3), board independence has an insignificant and negative impact on financial leverage, while in model (2), the relationship is positive and statistically insignificant. Therefore, increases and decreases in board independence do not significantly impact financial leverage. This leads to the general conclusion that the independence of the directors on a board is ineffective in maintaining financial leverage in non-financial firms registered on BURSA Malaysia, on observation which contradicts previous findings (Michelon and Parbonetti 2012; Tahir et al. 2020a; Rouf 2011).

The board tenure has a statistically significant and mixed impact on financial leverage in models (1) and (2), with a positive impact in model (1) and a negative impact in model (2). However, in model (3), the impact is negative but statistically insignificant. Therefore, increases and decreases in board tenure have a mixed impact on financial leverage. This leads to the general conclusion that board tenure has a mixed influence on maintaining financial leverage in non-financial firms registered on BURSA Malaysia, an observation

which contradicts previous findings by [Ben-Amar et al. \(2013\)](#), but which agreed with the findings of [Vafeas \(2003\)](#).

In models (1), (2), and (3), board diversity has a statistically significant and positive impact on financial leverage. Therefore, increases and decreases in board diversity have a significant impact on a firm's financial leverage. This leads to the general conclusion that board diversity is effective in maintaining financial leverage in non-financial firms registered on BURSA Malaysia, an observation which is supported by previous findings by [Carter et al. \(2003\)](#), [Chang et al. \(2014\)](#), [Randoy et al. \(2006\)](#), and [Zahra and Stanton \(1988\)](#).

6. Conclusions

This study was conducted in Malaysia with a focus on non-financial firms listed on BURSA Malaysia. The main objectives of the study were to investigate the relationship between board attributes (board size, board independence, board tenure, and board diversity) and financial leverage, as well as to determine the optimal board attributes for BURSA Malaysian non-financial firms. The results of the panel data analysis showed a statistically mixed relationship between board attributes and financial leverage, a result which is consistent with previous studies in the field. Therefore, we divided board attributes into different categories: board size, board independence, board tenure, and board diversity. We found that board size has an optimal range that is neither too small nor too large, and that maintaining a moderate board size is effective in maintaining financial leverage. We also found that board independence has a mixed relationship with financial leverage, with some models showing a negative relationship and others showing a positive relationship. However, overall, the relationship was found to be statistically insignificant. With respect to board tenure, the study found that an optimal tenure is neither too short nor too long, and that a moderate tenure is effective in maintaining financial leverage. The study also found that board diversity is effective in maintaining financial leverage, with gender diverse boards being particularly effective. Overall, higher board diversity was found to be beneficial in reducing conflicts of interest and making better decisions about financial leverage.

These findings have implications for agency theory, which suggests that conflicts can arise between agents and principals due to uncertainties, necessitating a balanced financial leverage policy between management and owners. The study suggests that larger boards, greater board independence, longer board tenure, and broader board diversity can help effectively monitor and provide resources to non-financial firms, mitigating agency problems and ensuring the welfare of diverse stakeholders. These findings are consistent with prior research that has utilized agency theory to explain the relationship between board attributes and financial leverage.

From a practical perspective, this study has implications for policymakers and practitioners in the field. The Malaysian Code of Corporate Governance (MCCG) recommends specific board attributes for non-financial firms, including a moderate number of directors, a minimum of 50% board independence, and a minimum of 40% women on the board. Our study suggests that these policies may need to be revised to address the high board tenure in family-owned businesses in Malaysia.

Future research can explore the impact of director experience, CEO duality, board member age and qualifications, and the moderating role of financial leverage on the relationship between firm performance and board attributes. This study highlights the importance of investigating the affiliation of board members with political parties, as this can affect their decision-making and potentially introduce agency conflicts.

In conclusion, our findings have important implications for agency theory and practical implications for policymakers and practitioners. Our recommendations can inform future research and policy decisions, highlighting the importance of board attributes in maintaining financial leverage in non-financial firms.

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References

- Abbas, Muhammad, Saif Ullah Qureshi, Muhammad Munir Ahmad, and Muhammad Rizwan. 2018. Corporate Governance and dividend payout policy: Mediating role of leverage. *Pakistan Journal of Social Sciences* 38: 62–86.
- Abeysekera, Indra. 2010. The influence of board size on intellectual capital disclosure by Kenyan listed firms. *Journal of Intellectual Capital* 11: 504–18. [\[CrossRef\]](#)
- Abor, Joshua, and Godfred Bokpin. 2010. Investment opportunities, corporate finance, and dividend payout policy. *Study on Economic Finance* 27: 180–94. [\[CrossRef\]](#)
- Abor, Joshua, and Vera Fiador. 2013. Does corporate governance explain dividend policy in Sub-Saharan Africa? *International Journal of Law and Management* 55: 201–25. [\[CrossRef\]](#)
- Adams, Renée, and Hamid Mehran. 2003. *Board Structure, Banking Firm Performance and the Bank Holding Company Organizational Form*. Federal Reserve Bank of Chicago Proceedings No. 866. Chicago: Federal Reserve Bank of Chicago.
- Al-Kuwari, Duha. 2009. Determinants of the dividend policy in emerging stock exchanges: The case of GCC countries. *Global Economy & Finance Journal* 2: 38–63.
- Al-Najjar, Basil, and Erhan Kilincarslan. 2016. The effect of ownership structure on dividend policy: Evidence from Turkey. *Corporate Governance* 16: 135–61. [\[CrossRef\]](#)
- Al-Najjar, Basil, and Peter Taylor. 2008. The relationship between capital structure and ownership structure: New evidence from Jordanian panel data. *Managerial Finance* 34: 919–33. [\[CrossRef\]](#)
- Amidu, Mohammed, and Joshua Abor. 2006. Determinants of dividend payout ratios in Ghana. *The Journal of Risk Finance* 7: 136–45. [\[CrossRef\]](#)
- Bae, Seong Mi, Md Abdul Kaium Masud, Md Harun Ur Rashid, and Jong Dae Kim. 2021. Determinants of Climate Financing and the Moderating Effect of Politics: Evidence from Bangladesh. *Sustainability Accounting Management and Policy Journal* 13: 247–72. [\[CrossRef\]](#)
- Barako, Dulacha, Phil Hancock, and H. Y. Izan. 2006. Factors influencing voluntary corporate disclosure by Kenyan companies. *Corporate Governance: An International Review* 14: 107–25. [\[CrossRef\]](#)
- Baysinger, Barry, and Henry Butler. 1985. Corporate governance and the board of directors: Performance effects of changes in board composition. In *Corporate Governance*. London: Gower, pp. 215–38.
- Ben-Amar, Walid, Claude Francoeur, Taïeb Hafsi, and Réal Labelle. 2013. What makes better boards? A closer look at diversity and ownership. *British Journal of Management* 24: 85–101. [\[CrossRef\]](#)
- Benjamin, Samuel Jebaraj, Shaista Wasiuzzaman, Helen Mokhtarina, and Niloufar Rezaie Nejad. 2016. Family ownership and dividend payout in Malaysia. *International Journal of Managerial Finance* 12: 314–34. [\[CrossRef\]](#)
- Boone, Audra, Laura Casares Field, Jonathan Karpoff, and Charu G. Raheja. 2007. The determinants of corporate board size and composition: An empirical analysis. *Journal of Financial Economics* 85: 66–101. [\[CrossRef\]](#)
- Byoun, Soku, Kiyoung Chang, and Young Sang Kim. 2016. Does Corporate Board Diversity Affect Corporate Payout Policy? *Asia-Pacific Journal of Financial Studies* 45: 48–101. [\[CrossRef\]](#)
- Carter, David A., Betty J. Simkins, and W. Gary Simpson. 2003. Corporate governance, board diversity, and firm value. *Financial Review* 38: 33–53. [\[CrossRef\]](#)
- Chaganti, Rajeswararao S., Vijay Mahajan, and Subhash Sharma. 1985. Corporate board size, composition and corporate failures in retailing industry. *Journal of Management Studies* 22: 400–17. [\[CrossRef\]](#)
- Chancharat, Nongnit, Chandrasekhar Krishnamurti, and Gary Tian. 2012. Board Structure and Survival of New Economy IPO Firms. *Corporate Governance: An International Review* 20: 144–63. [\[CrossRef\]](#)
- Chang, Ya-Kai, Robin K. Chou, and Tai-Hsin Huang. 2014. Corporate governance and the dynamics of capital structure: New evidence. *Journal of Banking & Finance* 48: 374–85.
- Chen, Ching-Fu, and Rochelle Rothschild. 2010. An application of hedonic pricing analysis to the case of hotel rooms in Taipei. *Tourism Economics* 16: 685–94. [\[CrossRef\]](#)
- Connelly, J. Thomas, Piman Limpaphayom, and Nandu J. Nagarajan. 2012. Form versus substance: The effect of ownership structure and corporate governance on firm value in Thailand. *Journal of Banking & Finance* 36: 1722–43.
- Cooper, Donald, and Pamela Schindler. 2003. *Business Research Methods*, 8th ed. Singapore: McGraw-Hill.
- Dallas, Lynne. 2001. *Development in the US Board of Directors and the Multiple Roles of Corporate*. San Diego: University of San Diego School of Law.
- de Villiers, Charl, Vic Naiker, and Chris J. van Staden. 2011. The effect of board characteristics on firm environmental performance. *Journal of Management* 37: 1636–63. [\[CrossRef\]](#)

- Dohoo, Ian R., Christian Ducrot, Christine Fourichon, Alan W. Donald, and Daniel Hurnik. 1997. An overview of techniques for dealing with large numbers of independent variables in epidemiologic studies. *Preventive Veterinary Medicine* 29: 221–39. [[CrossRef](#)] [[PubMed](#)]
- Faccio, Mara, Maria-Teresa Marchica, and Roberto Mura. 2016. CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of Corporate Finance* 39: 193–209. [[CrossRef](#)]
- Fama, Eugene F., and Michael C. Jensen. 1983. Separation of ownership and control. *Journal of Law and Economics* 26: 301–25. [[CrossRef](#)]
- Fama, Eugene F. 1980. Agency problems and the theory of the firm. *Journal of Political Economy* 88: 288–307. [[CrossRef](#)]
- Farrell, Kathleen A., and Philip L. Hersch. 2005. Additions to corporate boards: The effect of gender. *Journal of Corporate Finance* 11: 85–106. [[CrossRef](#)]
- Ghabayen, Mohammad Ahid, Zaid Jaradat, Ahmad Hardan, and Mohammad Obeid Al-Shbail. 2018. Optimal board size in the Jordanian banks: Empirical evidence based on accounting performance. *Journal of Business and Retail Management Research* 13: 232–40. [[CrossRef](#)]
- Ghosh, Chinmoy, and Clemon F. Sirmans. 2006. Do managerial motives impact dividend decisions in REITs? *Journal of Real Estate Finance and Economics* 32: 327–55. [[CrossRef](#)]
- Hair, Joseph, Jr., William Black, Barry J. Babin, Rolph E. Anderson, and R. E. Tatham. 2010. *SEM: An Introduction. Multivariate Data Analysis: A Global Perspective*. Upper Saddle River: Pearson Education, pp. 629–86.
- Hair, Joseph, Rolph Anderson, R. E. Tatham, and William Black. 1998. *Multivariate Data Analysis with Readings*. Englewood Cliffs: Prentice Hall.
- Hao, Qian, Nan Hu, Ling Liu, and Lee J. Yao. 2014. Board interlock networks and the use of relative performance evaluation. *International Journal of Accounting & Information Management* 22: 237–51.
- Harjoto, Maretno, and Hoje Jo. 2011. Corporate governance and CSR nexus. *Journal of Business Ethics* 100: 45–67. [[CrossRef](#)]
- Hillman, Amy J., Albert A. Cannella Jr., and Ira C. Harris. 2002. Women and racial minorities in the boardroom: How do they differ? *Journal of Management* 28: 747–63. [[CrossRef](#)]
- Hillman, Amy J., and Thomas Dalziel. 2003. Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management Review* 28: 383–96. [[CrossRef](#)]
- Jahid, Abu, Harun Ur Rashid, Md Abdul Kaium Masud, and Rizal Yaya. 2022. Corporate Social Responsibility Expenditure and Ownership Structure: A Longitudinal Study. *Banks and Bank Systems* 17: 24–37. [[CrossRef](#)]
- Jensen, Michael, and William Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3: 305–60. [[CrossRef](#)]
- Jensen, Michael C. 1986. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review* 76: 323–29.
- Jiraporn, Pornsit, Jang-Chul Kim, Young Sang Kim, and Pattanaporn Kitsabunnarat. 2012. Capital structure and corporate governance quality: Evidence from the Institutional Shareholder Services (ISS). *International Review of Economics and Finance* 22: 208–21. [[CrossRef](#)]
- Kervin, John B. 1999. *Methods for Business Research*, 2nd ed. New York: HarperCollins.
- Khan, Arifur, Dessalegn Getie Mihret, and Mohammad Badrul Muttakin. 2016. Corporate political connections, agency costs and audit quality. *International Journal of Accounting & Information Management* 24: 357–74.
- Lins, Karl V. 2003. Equity ownership and firm value in emerging markets. *Journal of Financial and Quantitative Analysis* 38: 159–84. [[CrossRef](#)]
- Masud, Md Abdul Kaium, Mohammad Nurunnabi, and Seong Mi Bae. 2018. The Effects of Corporate Governance on Environmental Sustainability Reporting: Empirical Evidence from South Asian Countries. *Asian Journal of Sustainability and Social Responsibility* 3: 1–26. [[CrossRef](#)]
- Masud, Md Abdul Kaium, Mohammad Sharif Hossain, Mahfuzur Rahman, Mohammad Ashraful Ferdous Chowdhury, and Mohammed Mizanur Rahman. 2023. Corruption Disclosure Practices of Islamic And Conventional Financial Firms In Bangladesh: The Moderating Role Of Big4. *Journal of Islamic Accounting and Business Research*. [[CrossRef](#)]
- Masud, Md. Abdul Kaium, Seong Mi Bae, Javier Manzanares, and Jong Dae Kim. 2019. Board Directors' Expertise and Corporate Corruption Disclosure: The Moderating Role of Political Connections. *Sustainability* 11: 4491. [[CrossRef](#)]
- Michelon, Giovanna, and Antonio Parbonetti. 2012. The effect of corporate governance on sustainability disclosure. *Journal of Management & Governance* 16: 477–509.
- Ntim, Collins G., Sarah Lindop, Dennis A. Thomas, Hussein Abdou, and Kwaku K. Opong. 2017. Executive Pay and Performance: The Moderating Effect of CEO Power and Governance Structure. *International Journal of Human Resource Management* 30: 921–63. [[CrossRef](#)]
- Pahi, Debasis, and Inder Sekhar Yadav. 2018. Role of Corporate Governance in Determining Dividend Policy: Panel Evidence from India. *International Journal of Trade, Economics and Finance* 9: 111–15. [[CrossRef](#)]
- Raheja, Charu G. 2005. Determinants of board size and composition: A theory of corporate boards. *Journal of Financial and Quantitative Analysis* 40: 283–306. [[CrossRef](#)]
- Rahman, Mahfuzur, Cheong Li Sa, and Md Abdul Kaium Masud. 2021. Predicting Firms' Financial Distress: An Empirical Analysis Using the F-Score Model. *Journal of Risk Financial Management* 14: 199. [[CrossRef](#)]
- Rahman, Mahfuzur, Mohamed Albaity, Tarannum Azim Baigh, and Md Abdul Kaium Masud. 2023. Determinants of Financial Risk Tolerance: An Analysis of Psychological Factors. *Journal of Risk Financial Management* 16: 74. [[CrossRef](#)]

- Randoy, Trond, Steen Thomsen, and Lars Oxelheim. 2006. *A Nordic Perspective on Corporate Board Diversity*. Oslo: Nordic Innovation Centre.
- Rouf, Abdur. 2011. Corporate Characteristics, Governance Attributes and the Extent of Voluntary Disclosure in Bangladesh. *African Journal of Business Management* 5: 7836–845. [CrossRef]
- Saeed, Abubakr, and Muhammad Sameer. 2017. Impact of board gender diversity on dividend payments: Evidence from some emerging economies. *International Business Review* 26: 1100–13. [CrossRef]
- Studenmund, Arnold. 2006. *Using Econometrics: A Practical Guide, Pearson New International Edition*. Harlow: Edinburch Gate.
- Tahir, Hussain, Mahfuzur Rahman, and Ridzuan Masri. 2020a. Do board traits influence firms' dividend payout policy? Evidence from Malaysia. *The Journal of Asian Finance, Economics and Business* 7: 87–99. [CrossRef]
- Tahir, Hussain, Ridzuan Masri, and Md Mahfuzur Rahman. 2020b. Impact of board attributes on the firm dividend payout policy: Evidence from Malaysia. *Corporate Governance* 20: 919–37. [CrossRef]
- Torres-Reyna, Oscar. 2007. *Panel Data Analysis Fixed and Random Effects Using Stata (v. 4.2)*. Data & Statistical Services. Princeton: Princeton University.
- Vafeas, Nikos. 2003. Length of board tenure and outside director independence. *Journal of Business Finance & Accounting* 30: 1043–64.
- Veal, Anthony James. 2005. *Business Research Methods. A Manageri*. South Melbourne: Pearson Education. Melbourne: Addison Wesley.
- Verhezen, Peter, and Tanri Abeng. 2022. *The Boardroom*, 1st ed. De Gruyter. Available online: <https://www.perlego.com/book/3547248/the-boardroom-a-guide-to-effective-leadership-and-good-corporate-governance-in-southeast-asia-pdf> (accessed on 30 January 2023).
- Vitolla, Filippo, Nicola Raimo, Michele Rubino, and Antonello Garzoni. 2019. The impact of national culture on integrated reporting quality. A stakeholder theory approach. *Business Strategy and the Environment* 28: 1558–71. [CrossRef]
- Williamson, Oliver. 1983. Organization form, residual claimants, and corporate control. *The Journal of Law and Economics* 26: 351–66. [CrossRef]
- Yermack, David. 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics* 40: 185–211. [CrossRef]
- Zahra, Shaker A., and John A. Pearce. 1989. Boards of directors and corporate financial performance: A review and integrative model. *Journal of Management* 15: 291–334. [CrossRef]
- Zahra, Shaker A., and Wilbur W. Stanton. 1988. The implications of board of directors composition for corporate strategy and performance. *International Journal of Management* 5: 229–36.
- Zelechowski, Deborah Dahlen, and Diana Bilimoria. 2004. Characteristics of women and men corporate inside directors in the US. *Corporate Governance: An International Review* 12: 337–42. [CrossRef]

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