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Women on Board: The Impact on Financial Performance of Companies Listed on Bursa Malaysia

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ABSTRACT

Research aim: This study aims to investigate the link between women representation as board members and Bursa Malaysia-listed companies' financial performance.
Design/ Methodology/ Approach: Data was obtained from the Bursa Malaysia website on the 100 leading public listed companies (PLCs). The data covers the period between 2016 and 2018. The association between the dependent and independent variables was evaluated using panel data regression analyses.
Research finding: The findings indicate a negative association between the representation of women on directorial boards and firm financial performance. Conversely, positive associations were found between women on audit committees and firm performance, and when women serve as CEOs or board chairpersons. The study also finds that women directors with accounting and finance backgrounds, as well as their age, tenure, and independence have no significant association with firm performance.
Theoretical contribution/ Originality: The main academic contribution this study makes is evidence that women on boards was an influential factor after 2016; by this year, Malaysian listed companies were to have implemented this policy effectively.
Practitioner/ Policy implication: The results of the study showed that firm performance may be enhanced when women fill positions on audit committees or as CEOs or chairpersons. This may motivate listed firms in Malaysia to appoint more qualified women as members of the boards not only to adhere to the government policy, but also to benefit in terms of financial performance.
Research limitation: The study only examines the top 100 PLCs, which may affect the generalisation of the results. Second, the research only covered the years 2016 to 2018, so the study might not fully illustrate the actual long-term impact that women directorial board members have on firm performance. Furthermore, this paper does not examine the critical mass of women directors in depth, although the amount of women board members needed to have a major effect will be determined by this.
Keywords: Women on board, Firm performance, Malaysian listed companies, Corporate governance
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1. Introduction

Recent debate has focused on the theme of women being represented on directorial boards. Both academics and policymakers have devoted attention to women becoming more involved in senior managerial roles. Women are said to be more tolerant, open-minded, better at multitasking and more highly educated than men (Ahmad et al., 2020). Women are also found to be more hardworking supervisors, which helps enhance the quality of board decisions and the legality of companies (Lim et al., 2019). Having these characteristics enable them to perform well, which in turn serves to improve firm performance. Hence, the topic of women being represented on directorial boards has been extensively researched since they might be able to maximise firm performance (Ahmad et al., 2020).

Many countries have implemented laws on the minimum number of women directors a board should have. In 2003, for example, listed companies in Norway were legally required to abide by a quota of at least 40% women board members, the first such policy in the world. Subsequently, listed companies in France and Spain were also required to ensure that directorial boards contained at least 40% women. Varied quota requirements were established elsewhere, with Italy and the Netherlands requiring boards to contain 30% women directors in 2016 (Moreno-Gómez & Calleja-Blanco, 2018). This information indicates that having more women on boards is not a recent initiative in many countries. The impacts of these women on company performance in developed countries are more obvious and recognised. In developing economies such as Malaysia, women are just starting to be involved. This may be due to the influence of Islam, the dominant religion in Malaysia, not encouraging women to become leaders, and less women undertaking such roles in Eastern cultures (Abdullah & Ku Ismail, 2016). Nevertheless, Malaysia has introduced several measures that promote the interest of women in this regard.

The Malaysian government has attempted to address this situation through corporate governance and legislative reforms. There is official awareness of the barriers faced by women in accessing various leading roles within structures of corporate governance. A 2004 government policy stipulated that women had to hold at least 30% of the public sector decision-making roles. As an outcome of this gender policy, more than 30% of women filled senior positions in the public sector in 2010; an increase from 19% in 2004 (Nik Anis, 2011). In 2011, this policy was broadened to include publicly listed companies (PLCs). By 2016, women were to hold a minimum of 30% of the decision-making positions (Nik Anis, 2011). These implementations demonstrate that the Malaysian government is supportive of the empowerment of women and encourages them to become decision-makers in businesses, which promotes greater professional development (Amran et al., 2014). However, as of 2016, the targeted 30% had yet to be achieved, reaching only 11.5% (Lim et al., 2019; Kana, 2016). In July 2017, a deadline of 2020 was set by the prime minister, by which date every PLC board had to contain a minimum of 30% women members (Brown, 2017).

The recommendation on women involvement was highlighted in Malaysian Code of Corporate Governance (MCCG) 2012 (SC, 2012) and emphasised in the revised MCCG 2017 (SC, 2017a) and MCCG 2021 (SC, 2021), in which the nomination committee should formulate policies to actively assist women as directors, assist top managers in establishing business networks, and encourage them to join the boards as part of their career development and address cultural barriers to prevent women from holding top management and board positions. It was also recommended that nomination committees have measurable goals for achieving gender diversity, and to evaluate its policies and results on an annual to determine its effectiveness. Under paragraph 15.25 of Bursa Malaysia's Listing Requirements, PLCs must ensure that its board of directors provide an overview statement of the application of the principles set out in the MCCG in its annual report. PLCs must also disclose the application of each practice set out in the MCCG during the financial year, and this includes a disclosure on the level of compliance on women on boards requirement in the annual reports (SC, 2017b).

Against this backdrop, it is then imperative to examine the impact of women on boards from the perspective of financial performance of listed companies. As previously noted, a deadline of 2016 (subsequently revised to 2020) was set by the Malaysian government, by which date every PLC board had to feature a minimum of 30% women members. Substantial research has indicated the benefits of board gender diversity; for instance, improved performance (Liu, Wei, & Xie, 2014; Reguera-Alvarado, de Fuentes, & Laffarga, 2017; Usman et al., 2019). Therefore, the present study is aptly timed, since it investigates how this policy has affected the performance of Malaysian listed organisations. Were the findings to reveal that women representation on directorial boards impacted positively on PLC performance, policymakers would likely urge non-compliant organisations to adhere to the policy of ensuring boards contain at least 30% women. Not only is the number of women important, but also the quality (i.e., characteristics) they bring to the board. In this study, the quality of women on boards is measured by a number of characteristics, such as having accounting and finance qualifications, and whether they are independent or non-independent directors. This study will provide recent evidence that emphasises the impact of women on boards on the company's performance of PLCs in Malaysia as measured by these different qualities.

Furthermore, the outcomes of the current study are anticipated to enable PLCs, prospective investors and academics to better understand women representation on boards and its possible effects on firm's performance. The output of the study can also be used as input to the Malaysian government, policymakers and regulatory authorities, by indicating the importance women directors to the success of large companies in Malaysia. In addition, the study serves as a follow-up to Ahmad et al. (2020), which investigates the impact of women on board when the policy was initially introduced to include PLCs in 2011. In other words, the current study will provide evidence of whether there is any improvement of women involvement on board of Malaysian PLCs after the updated 2016 policy announcement of minimum requirement. Many of the Malaysian studies in the literature were conducted before 2016, thus this study utilises a more recent dataset encompassing the two years after of the second policy announcement, from 2016 until 2018, to investigate its impact of on company performance. This is the gap that this study will attempt to address.

The remainder of this paper is arranged as follows: Section 2 contains the literature review and development of the hypotheses, Section 3 outlines the method used, before the study findings are presented and discussed in Section 4. The study conclusions are offered in Section 5, which also contains practical implications and possible directions for future researchers.

2. Theoretical Framework and Hypotheses Development

2.1 Women on boards and firm performance

The principle of resource dependence theory (RDT) maintains that directorial boards are significantly influential in enhancing the accessibility of key resources, which would enable a company to achieve more (Reguera-Alvarado et al., 2017). The theory also shows that directors offer many advantages to their companies—they can be beneficially informative through guiding and consultancy roles; increase the accessibility of networks of communication to a firm as a whole and within its environment; and increase the accessibility of high-quality resources and legitimacy (Moreno-Gómez & Calleja-Blanco, 2018). To maximise these advantages, Hillman, Shropshire, and Cannella (2007) point out that the board of directors should comprise diverse participants with various abilities. A firm's performance and the enhancement of its value are linked to various factors, including greater access to resources, less ambiguity, less dependence on external parties and improved image; all these features improve if the board has greater diversity.

Recruiting women as members of the boards indicates that a company is considering the greatest capacity and responds to the requirement to increase board diversity and consequently to improve governance, thereby improving its reputation and therefore, performance (Moreno-Gómez & Calleja-Blanco, 2018). Gender diversity with more women on boards can also help firms to decrease their reliance on outside resource providers, minimise uncertainty and build a good reputation, thus improving company performance (Mohamed, Jaapar, & Khalid, 2019). Furthermore, women purchasing power is recognised in the boardroom as they can link a firm to important suppliers, customers and even investors (Hillman Shropshire, & Cannella, 2007), and these indicate positive influences women directors have on firm performance.

Women representation on a company boards and the roles they play in obtaining new resources will grow in importance with an increased number of women directors. The reason is that women facilitate boosts to the pool of talent and improvements to firm performance. Numerous research findings support the view that firm performance would be positively influenced by women representation on boards (e.g. Abdullah, Ku Ismail, & Nachum, 2012; Adams & Ferreira, 2009; Adler, 2010; Alqatamin et al., 2018; Amran et al., 2014; Arayssi, Dah, & Jizi, 2016; Ariff et al., 2017; Campbell & Vera, 2010; Carter, Simkins, & Simpson, 2003; Arena et al., 2015; Erhardt, Werbel, & Shrader, 2003; Francoeur, Labelle, & Sinclair-Desgagné, 2008; Ghaeli et al., 2019; Gregory-Smith, Main, & O'Reilly, 2014; Hassan et al., 2017; Green & Homroy, 2018; Jizi & Nehme, 2017; Julizaerma & Sori, 2012; Kubo & Nguyen, 2021; Yap, Chan, & Zainudin, 2017; Liu, Wei, & Xie, 2014; Low, Roberts, & Whiting, 2015; Mohamed, Jaapar, & Khalid 2019; Mahadeo, Oogarah-Hanuman, & Soobaroyen, 2011; Martín-Ugedo, Mínguez-Vera, & Rossi, 2019; Nguyen & Faff, 2006; Ntim, 2015; Sanan, 2016; Shrader, Blackburn, & Iles, 1997; Singh, Singhania, & Sardana, 2019). Nevertheless, some studies indicate that firm performance would be negatively influenced by women board membership (e.g. Ahmad et al., 2020; Lim et al., 2019; Martinez-Jimenez, Hernández-Ortiz, & Fernández, 2020; Razali et al., 2018; Tran Minh, & Wang, 2021; Usman et al., 2019). Although research with positive findings outweigh those with negative findings, studies that utilise Malaysian data yielded results that remain inconclusive. Since most of these studies were conducted prior to 2016, more evidence should be provided to support the argument related to the presence of women on boards of directors. Therefore, based on theory of RDT and following the majority of prior findings, the following assumption will be tested in this study:

H1 The existence of women on board of directors is positively associated with firm's performance

2.2 Women independent directors and firm performance

According to the RDT, independent directors with their valuable knowledge and resources, such as special proficiency, legitimacy and social networks, can play a role on the board of directors (Terjesen, Couto, & Francisco, 2016). Studies undertaken in the context of developed countries like the United Kingdom and the United States show that the ways companies perform and are governed could be improved by independent directors, who often adopt supervisory and consultation roles (Faleye, Hoitash, & Hoitash, 2011). The consultation role of the independent directors is in line with RDT; Hillman, Shropshire, and Cannella (2007) state that a firm may decisively select a woman director purely for advice and guidance and at the same time, benefit from the legitimacy or access to resources she lends to the organisation.

Prior studies have emphasised the influence of women on boards, particularly when they are appointed as independent directors (Benkraiem et al., 2017). In the role of an independent director, a woman has a greater likelihood of improving the board's management and decision making. This is reflected in Hossain and Oon (2022), who find that women independent directors often call for more meetings, which can lead to better board management. Hence, it can be said that independent women directors are a powerful instrument for company boards. Directorial positions are highly sensitive, so this type of director is generally motivated to make the board more efficient, augment the board's decision-making processes, and ensure the organisation's behaviour is controlled. As independent directors, women directors seem to be more effective than men because they have a hard time holding such positions. Furthermore, when adopting independent directorial roles, women are generally highly experienced professionals, and maintain the attention of female employees by acting as role models (Benkraiem et al., 2017).

Terjesen, Couto, and Francisco (2016) studied the relationship between women independent directors and firm performance. The authors gathered data from 3,876 listed firms in 47 countries or regions, as well as information about differences in corporate governance characteristics. Their findings indicate that firms' marketing (Tobin's q) and accounting (return on assets, ROA) performances improved when they engaged a higher number of women independent directors.

Therefore, with the above discussion in mind, this study attempts to test the following hypothesis:

H2 Women independent directors on boards is positively associated with firm performance

2.3. Women board member's accounting and finance qualifications and firm performance

Using RDT as the underpinning of their study, Ahmad et al. (2020) argue that women directors with sufficient accounting and finance experience may be better able to comprehend problems relevant to the company, and this would help them identify possible difficulties and offer their skills in problem-solving, which in turn can help improve company performance (Ahmad et al., 2020). Smith, Smith, and Verner (2006) also come to the same conclusion in their study of a sample of Danish firms, noting that this positive association is largely dependent on the qualifications of women directors.

Francis, Hasan and Wu (2012) suggest that firm directors with financial knowledge may also provide valuable resources in terms of financial advice to the management and may help a firm to easily access external funds (Guner, Malmendier, & Tate, 2008). These functions may result in substantial effects on firm outcomes, specifically firm performance, which will add value to a firm, and as a consequence, will better serve the interest of the shareholders (Md Nor & Abd Rahman, 2019). The MCCG 2017 and MCCG 2021 strongly recommend that all audit committee members should be financially literate due to the nature of their responsibilities, that requires in-depth understanding on the company's financial reporting process. Recognising the importance of company directors to be financially literate and following Ahmad et al. (2020), therefore, a third hypothesis is put forth:

H3 Women directors with accounting and finance qualifications are positively associated with firm performance

2.4. Women on audit committee and firm performance

From the viewpoint of RDT, women in audit committees play a key role in enhancing governance mechanisms, improving investor trust, and enhancing monitoring and conservative financial reporting (Ud Din et al., 2020). As women are known for being meticulous and having great attention to detail, they provide essential resources for an audit committee to ensure a company has high-quality financial reporting and subsequently, improve company performance. As Martin-Ugedo, Mínguez-Vera, and Rossi (2019) argue, firms with board and audit committees that contain more women might be able to achieve higher quality financial reporting since errors and restatements can be reduced. These women directors seem to seek out high-quality audit information which can make it less likely for auditors to discover errors, one of the factors that can increase the possibility of restatement (Martín-Ugedo, Mínguez-Vera & Rossi, 2019).

Additionally, Harjoto, Laksmana, and Lee (2015) state that the cost of an audit can be reduced if women are involved on the board and the audit committee. As they note, the representation of women on directorial boards may lead to lower audit costs because communications with the auditors can be enhanced, as could the internal oversight efficiency, while the production of the financial report might become more accurate. Chijoke-Mgbame, Boateng and Mgbame (2020) find that the existence of women directors on audit committees has a significant positive relationship with firm performance in Nigeria. Additionally, Thiruvedi and Huang (2011) reveal that if audit committees contained women directors, each committee's authority would improve in terms of external party tasks, thus leading to a reduction in earnings management. The authors believed that women representation meant that audit committees gathered more regularly, resulting in committees undertaking more activities in general.

Companies can become more efficient by ensuring their boards and audit committees are more diverse in terms of gender (Aldamen, Hollindale, & Ziegelmayer, 2018). If these bodies contain more women, benefits would be attained because directors with experience offer collective ideas that might resolve different accounting problems, thus helping to eliminate the danger of fraudulent behaviour or financial misstatements (Martín-Ugedo, Mínguez-Vera, & Rossi, 2019). This leads to the fourth hypothesis to be tested:

H4 Audit committees with at least one woman director is positively associated with firm performance

2.5. Women CEOs or chairpersons and firm performance

RDT supports the view that the recruitment of female CEOs or board chairpersons demonstrates a company's endeavour to seek the most suitably talented individuals, and to respond to the required expansion of board diversity, which would enhance firm governance and improve its image and performance (Moreno-Gómez & Calleja-Blanco, 2018). If a woman can join a board, especially in the role of CEO or chairperson, this would enable the organisation to access more resources, limit uncertainty and dependence on outsiders, as well as boost their image. Each of these developments has been linked to improved firm value and performance (Moreno-Gómez & Calleja-Blanco, 2018).

Some scholars have studied the connection between women in CEO positions and company performance. Khan and Vieito (2013), for instance, observe that in the US, companies managed by women CEOs perform better than those dominated by men. These findings are supported by Liu, Wei and Xie (2014), who discover that Chinese listed companies' economic performance (ROA) is positively connected to women being CEOs. Moreover, Faccio, Marchica, and Mura (2016) find that women CEOs help increase the likelihood of business continuity. Perryman, Fernando, and Tripathy (2016) also offer evidence that the existence of women in CEO positions can improve performance and reduce risk.

Women's involvement as CEOs can also bring essential advantages to the group and company. Women's capacity to multi-task, as well as their personal and managerial skills, could be enhanced by their different roles in a personal context (Vergara & Santoliquido, 2011). Hurley and Choudhary (2016) find that a firm's number of staff and its members' years of education and number of children can play a significant part in deciding the likelihood of more women filling the CEO positions. Compared to men, the work behaviour of women highlights harmony and stimulates trust between CEOs and assistants, which improves the ability to share information and respond to challenges. Therefore, this discussion leads to the development of the fifth hypothesis to be tested in the current study:

H5 Boards with a woman CEO/Chairman is positively associated with firm performance

2.6. Age of women directors and firm performance

Dagsson and Larsson (2011) state that age diversity on the board will help increase its aggregated human and social capital which results in improved decision-making that leads to enhanced firm performance. Support for this can be identified in RDT, which contends that a woman board member's age is a useful resource through which organisations might make their operations more efficient. Furthermore, Hasnan and Marzuki (2017) report a connection between RDT and the age of a board member, where a company is able to obtain useful resources based on the input of senior directors. A board's decision making can be improved if it contains a greater number of women with power and maturity, who might offer innovative ideas and opinions, thereby prompting innovations by the firm (Saggese, Sarto, & Vigano, 2021) and enhancing its performance.

According to Barker and Mueller (2002), older directors can add value to the company by using their accumulated skills and experiences, whereas younger directors may bring unique skills to the board that can deal with the fast-changing corporate environment and help promote company growth. Having younger directors is not necessarily related to high firm performance, but they can bring different experiences and perspectives that could help in the changing business climate (Caroll, 2018). Furthermore, Ahn and Walker (2007) conclude that young directors are flexible and more likely to accept and implement strategic change. On the other hand, firms with older directors are less likely to expose their company to bankruptcy. Due to the conflicting arguments, the following hypothesis is built:

H6 Age of women directors is significantly associated with firm performance

2.7. Tenure of women directors and firm performance

As mentioned earlier, the RDT views the board of directors as a link to resources that could help a firm improve its performance. Directors with longer executive tenure can assists other board members in providing guidance, counselling and enhanced access to resources (Pfeffer & Salancik, 1978). The skills obtained from an extensive tenure should enable the board to arrive at its own decisions instead of depending on the administration for clarifications.

Existing studies suggest that a director whose tenure is longer is better-positioned to improve financial disclosures, which would minimise financial restatement-related issues (Hasnan & Marzuki, 2017). As Ali, Deininger, and Goldstein (2014) note, a diverse directorial board can help to develop links with major shareholders outside the firm. This will portray a company's commitment to diversity, which can then help attract and maintain individuals from different demographic qualifications. In addition, having board members with different tenures can promote healthy discussions (Ali Deininger, & Goldstein, 2014).

Knight et al. (1999) explore how gender-diverse tenure is related to company performance, using samples from the US and Ireland, and find that these factors are positively correlated. Meanwhile, Goldsmith (2012) studies directorial board tenure and company performance in the US, based on a sample of 282 financial sector firms, with the findings showing that the tenure of the board can support the company's continued, sustainable, and profitable performance. Therefore, based on the above discussion, this study will test the following hypothesis:

H7 The tenure of women directors on boards is positively associated with firm performance

3. Research Methodology

3.1 Sample selection

The current study aims to explore how women representation on boards is related to the performance of Bursa Malaysia-listed companies. The study sample is Malaysia's top 100 PLCs between 2016 and 2018. The top 100 PLCs represented a market capitalisation of 82% in 2016 (Kana, 2016). These companies are chosen since their performance has a huge influence on the total economy of the country. In June 2011, the Malaysian government introduced an objective that women should fill a minimum of 30% of the decision-making roles in publicly listed organisations. Thus, the board of leading Bursa Malaysia-listed companies would be more likely to contain women. Initially, 300 observations were formed; 45 observations were excluded from the sample since they belonged to financial industries and have unique requirements. Thus, 255 firm-year observations were included in the final sample. The data for this study were collected from the DataStream database. The final sample of the study is summarised in Table 1.

Table 1. Sample Selection

	2016	2017	2018	Total
Total observation	100	100	100	300
Less: Companies in finance industries	15	15	15	45
Final sample	85	85	85	255

3.2 Measurement of variables

There are a number of financial performance measures, such as Tobin's q, return on assets (ROA) and return on equity (ROE). These measures are mainly categorised into two groups: accounting-based measures and market-based measures. In this study, firm performance is measured by ROA, being one of accounting-based performance measures. This proxy has been used by many authors such as Liu, Wei, and Xie (2014), Terjesen, Couto, and Francisco (2016), Sanan (2016), Ward and Forker (2017) and Ahmad et al. (2020). This profitability ratio is selected as it is most commonly used to indicate the ability of an entity to produce accounting-based earnings (Kilic & Kuzey, 2016).

Table 2. Summary of Variables Included in Empirical Model

Variables	Acronym	Measurement

Firm performance	ROA	Return on assets
Women on boards	WOB	Proportion of women on boards of directors
Women independent directors	WIND	Proportion of independent women directors to total independent directors
Women board member's accounting and finance qualifications	WAF	Proportion of women with accounting and finance qualifications
Women on audit committee	WAC	Proportion of women on audit committees
Women CEOs/ chairpersons	WCEO/ WCHAIR	Women as CEOs or chairmen of the board
Age of women directors	AGE	Average age of women directors
Tenure of women directors	TEN	Average tenure of women directors
Firm size	SIZE	Natural log of total market capitalization
Firm leverage	LEV	Total liability divided by total assets

This study includes two control variables, namely firm size and firm leverage, due to past evidence suggesting that these variables may influence the appointment of women on boards and firm performance (i.e., Ahmad et al., 2020; Hillman, Shropshire, & Cannella, 2007; Kilic & Kuzey, 2016).

STATA software is used to analyse the study hypotheses. The study employs regression modelling to describe how the dependent and independent variables are related. The following equation was used to test how women representation on directorial boards affected firm performance:

$$ROA=B0 + B1\ WOB+ B2\ WIND +B3\ WAF+ B4\ WAC +B5\ WCEO/WCHAIR +B6\ AGE +B7\ TEN +B8\ LEV+B9\ SIZE+ \varepsilon$$

Where *ROA* refers to return on assets; *WOB* to proportion of women on boards of directors; *WIND* to the proportion of independent women directors to total independent directors; *WAF* to the proportion of women with accounting and finance qualifications; *WAC* to the proportion of women on audit committees; *WCEO/ WCHAIR* to women as CEOs or board chairpersons; *AGE* to the average age of women director; *TEN* to the average tenure of women directors; LEV to the leverage; *SIZE* to the natural log of total market capitalisation; and ε to the error term.

4. Results and Discussion

4.1 Descriptive statistics

Descriptive statistics on the continuous variables are shown in Table 3. The table shows that the values of skewness and kurtosis are within acceptable levels, thus there is no violation of the normality assumption. As shown in the table, the ROA mean is 0.080, while an average of 29.9% of directorial boards contained women between 2016 and 2018. These results indicate that the number of women directors among the top 100 listed companies in Malaysia has been significantly improved, especially during the study period, and generally meets the policy requirement of a minimum of 30% women on the board effectively implemented starting 2016. However, the findings also show that some companies have no women as board members, and others companies with 57% women on their boards. This demonstrates the important decision-making roles played by women in Malaysia's publicly listed companies. This finding is inconsistent with Lim et al. (2019) and Mohamed, Jaapar, and Khalid (2019), who find that the average proportion of women directors on Malaysian boards to be 11% and 16.93%, respectively. This inconsistency between results is attributed to the difference of samples used in the study (Mohamed Jaapar, & Khalid, 2019) and the years under study (Lim et al., 2019).

Table 3. Descriptive Statistics for 2016-2018 (Average)

Variable	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
ROA	0.080	0.082	-0.05	0.36	1.63	5.75
WOB	0.299	0.224	0	0.57	0.88	3.08
WAF	0.353	0.377	0	1	0.55	1.89
WAC	0.238	0.218	0	0.75	0.37	2.14
TEN	4.797	5.715	0	35	1.31	9.53
AGE	54.550	11.329	30	71.5	-1.00	3.12
WIND	0.240	0.203	0	1	0.45	2.82
SIZE	22.818	0.909	21.460	25.183	0.65	2.41
LEV	0.684	0.779	0.02	9.59	1.52	4.21

Note: The percentage of net incomes to overall assets is given as ROA. WOB is the percentage of women on boards for each company. WAF is the proportion of women on boards with accounting and finance qualifications. WAC is the percentage of women on audit committees. TEN is the average tenure of women on boards. The average age of a woman board member is given as AGE. The ratio of independent women board members is given as WIND. The natural log of overall market capitalisation is given as SIZE. The ratio of overall liability divided by overall equity is given as LEV.

The statistical descriptions of each dummy variable are presented in Table 4. It can be seen that the average ratio of women CEOs or chairpersons is 7.06%, whereas the average ratio of male CEOs or chairpersons constitutes 92.94%.

Table 4. Descriptive Statistics for Dummy Variables (Dummy Variables for Annual Data)

Average three-year data (2016-2018)				
Variable	YES	Percent	NO	Percent
WCEO/ WCHAIR	18	7.06	237	92.94

Note: WCEO and WCHAIR are dummy variables which equivalent to 1 if the CEO or chairperson is a woman and 0 if otherwise.

4.2 Correlation results

Correlation analysis was conducted to recognise the existence of multicollinearity issues among the variables. The correlations between the study variables were tested using Pearson's correlation coefficient. The findings presented in Table 5 shows that the correlation among independent variables is free from multicollinearity since all the values are below 0.8. The highest correlation is between independent women directors (WIND) and women directors on audit committee (coefficient = 0.7645).

Table 5. Correlation Matrix for the Variables

	ROA	WOB	WAF	WCEO/ WCHAIR	WAC	TEN	AGE	WIND	SIZE	LEV
ROA	1.000									
WOB	0.0278	1.000								
WAF	-0.0513	0.2233***	1.000							
WCEO/ WCHAIR	0.0555	0.03040	-0.0211	1.000						
WAC	0.0376	0.4139***	0.2970***	-0.0455	1.000					
TEN	-0.0174	0.3118***	0.2178***	0.0713	0.2963***	1.000				
AGE	-0.0905	0.2581***	0.1862***	-0.1116*	0.3815***	0.4384***	1.000			
WIND	-0.0131	0.4458***	0.1329***	-0.0852*	0.7645***	0.1490***	0.4296***	1.000		
SIZE	-0.0242	0.0355	0.0989	-0.0531	0.1878***	-0.0695	0.0567	0.1275***	1.000	
LEV	-0.1590*	-0.3450***	-0.2510***	0.0917**	-.2081***	-0.0021	-0.0845	-0.0866	0.0155***	1.000

Notes: * Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed). *** Correlation is significant at the 0.10 level (2-tailed). ROA is the percentage of net income to total assets. WOB is the percentage of women on boards for each company. WAF is the proportion of women on boards with accounting and finance qualifications. WCEO and WCHAIR are dummy variables which equivalent to 1 if the CEO or Chairman is a woman and 0 if otherwise. WAC is the percentage of women on audit committees. TEN is the average tenure of women on boards. AGE is the average age of women on boards. WIND is the proportion of independent women on boards. SIZE is the natural log of total market capitalization. LEV is the proportion of total liability divided by total equity.

Moreover, variance inflation factor (VIF) was utilised to identify multicollinearity issues. According to Field (2009), there is no multicollinearity problem if VIF value is less than 5. The results presented in Table 6 indicate that all values are less than 5 and within the satisfactory level, at which multicollinearity will not impair the regression results.

Table 6. VIF Test

Variable	VIF	1/VIF
WOB	1.27	0.788
WIND	3.11	0.323
WAF	1.21	0.829
WAC	2.82	0.355
WCEO/ WCHAIR	1.06	0.946
AGE	1.83	0.545
TENURE	1.33	0.755
SIZE	1.13	0.882

LEV	1.09	0.915
MEAN VIF	1.59	

4.3 Panel data analyses

The data used in the study is panel data. Thus, the researchers were able to employ three separate alternative analyses: regression with pooled effects, regression with random effects and regression with fixed effects. The first test is the Breusch-Pagan Lagrange multiplier test that help to choose between pooled model or fixed effects model or random effects model. The Breusch-Pagan Lagrange multiplier test shows that $p < 0.05$. This means the pooled model is not appropriate. This study then used the Hausman test to determine if it is necessary to use a random or fixed-effect model. If the Hausman test is not significant, then random-effect regression analysis should be used. The result of this test showed that $p > 0.05$, which indicates that random model is more appropriate. Thus, the panel data of the current study are tested by the random-effect model.

4.4 Regression results

The current study tests the association of dependent variable with seven independent variables and two control variables. In the current paper, company performance was the dependent variable, which was assessed through ROA. The results of the panel data regression are presented in Table 7. The adjusted R2 value is 21.37%. Thus, the independent variables can explain 21.37% of the ROA variance. Furthermore, these variables appeared to be crucial when company performance is described, which was achieved by evaluation using ROA.

Table 7 Regression Results (2016-2018 Data)

ROA	COEF.	STD. ERR.	T	P>[T]
WOB	-0.211	0.060	-3.50	0.001**
WIND	0.009	0.027	0.36	0.722
WAF	0.011	0.009	1.17	0.243
WAC	0.088	0.046	1.90	0.046*
WCEO/ WCHAIR	0.046	0.012	3.71	0.000**
AGE	-0.000	0.000	-1.16	0.247
TEN	0.000	0.000	1.34	0.181
LEV	-0.020	0.004	-4.78	0.000**
SIZE	0.002	0.004	0.61	0.541
_CONS	0.041	0.084	0.48	0.630
F-statistics	6.75			
P-value	0.000			
N	255			
R^2	0.2508			

Adjusted R^2	0.2137

Notes: * Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed). ROA is the percentage of net income to total assets. WOB is the percentage of women on boards for each company. WIND is the proportion of independent women on boards. WAF is the proportion of women on boards with accounting and finance qualifications. WAC is the percentage of women on audit committees. WCEO and WCHAIR are dummy variables which equivalent to 1 if the CEO or Chairman is a woman and 0 if otherwise. TEN is the average tenure of women on boards. AGE is the average age of women on boards. SIZE is the natural log of total market capitalization. LEVERAGE is the proportion of total liability divided by total equity.

As presented in Table 7, the findings indicate the significance of WOB and that this variable is negatively associated with ROA at a 1% significance level (p = 0.001). This does not correspond to the initial expectation, which assumed that women representation on directorial boards would positively affect the performances of Malaysia's leading 100 listed firms. Thus, H1 is not accepted. However, this result supports other Malaysian studies, such as Razali et al. (2018), Ahmad et al. (2020) and Lim et al. (2019). Moreover, the studies of Usman et al. (2019), Martinez-Jimenez, Hernández-Ortiz and Fernández (2020) and Tran, Minh and Wang (2021) in Pakistan, Spain and Western Europe, respectively, reveal that gender-based diversity is negatively associated with company performance.

Meanwhile, the current findings show that if audit committees contain women directors (WAC), this is significantly and positively associated with ROA at the 5% level (p = 0.046). This finding indicates that companies with more women on their audit committees are more effective, which subsequently leads to improved company performance. This outcome corresponds to the contention of Harjoto, Laksmana and Lee (2015) that if women became involved as board and audit committee members, the costs of audits could fall, thereby enhancing company performance. Chijoke-Mgbame, Boateng and Mgbame (2020) also find that firm performance is positively associated with the existence of gender diversity on the audit committee in Nigeria. Thus, H4 of the study is accepted.

Moreover, Table 7 shows that WCEO/ WCHAIR is significant and has a positive association with ROA at the 1% level (p = 0.00). From this outcome, it can be inferred if women become CEOs or board chairpersons, they are able to offer better control and utilise the company's resources efficiently to boost its overall performance. This result is consistent with Faccio, Marchica, and Mura (2016) and Perryman, Fernando, and Tripathy (2016) who find empirical evidence that women CEOs can reduce risk and increase the likelihood of business growth. These significant positive results show that companies with women CEOs or chairpersons on their boards performed better financially that those that do not. Being a CEO or a chairperson indicates that the person has displayed outstanding leadership quality in many situations, particularly in the toughest of circumstances. With their quality, merit and recognition, women CEOs or chairpersons would probably be able improve company performance and support the argument that businesses with strong culture of diversity are better positioned than their less diverse peers. Thus, H5 is accepted.

The qualifications of women directors (WAF) was found to be positively related with ROA, but not to a major level of significance. These results are in line with Ahmad et al. (2020). Therefore, H3 is not supported. The positive findings, even though insignificant, indicate that perhaps having accounting and finance background would be an added advantage for women directors to serve a listed company. Crucially, a woman needs to be employed in such roles based on merit and appropriateness, not merely to complete a board's general composition or to adhere to policy requirements. Other findings show no significant associations, such as between independent women directors (WIND), their age (AGE) and tenure (TEN) and firm performance. Thus, H2, H6 and H7 are not accepted.

5. Conclusion

The current study explores how women representation on directorial boards, as well as women's attributes, influenced the performance of Malaysia's leading 100 PLCs. The overall study sample was 255 firm-year observations from 2016 to 2018. Associations between the dependent and independent variables were justified using RDT. Company performance was the study's dependent variable, which was assessed using ROA. The study tested the existence of women on board, their independence, women with finance and accounting qualifications, women directors on audit committee, women as a CEOs or chairpersons, women directors' age and their tenure on the board, all as independent variables. Company leverage and size formed the two control variables used here.

As shown by the regression analysis findings, company performance had a negative association with women representation on directorial boards. One explanation is that Malaysia's leading listed companies have not employed a critical mass of women directors. This is suggested by Saggese, Sarto and Vigano (2021), who indicate that women on the board of Italian companies positively affect firm performance in terms of innovation input as measured by R&D spending. The positive result is valid only when the number of women directors reaches a critical mass. For women to make a substantial difference, Torchia et al. (2010) recommend that if a corporate board contains a minimum of three women, it might gain specific benefits that would enable it to achieve its strategic aims. Another reason for the negative finding is that women directors are probably appointed just to fulfil the quorum. As a results, their contribution maybe undermined or made lesser by the other board members.

Moreover, the results report that firm performance has positive associations with the existence of the women on audit committee and when women take a place as a CEO or chairperson. These maybe due to the power ascribed to them for being the CEO or being the member of audit committee which enable them to have more sustained and apparent impact of firm performance. However, the study fails to find empirical evidence to support the association between women directors with accounting and finance expertise, women's tenure, women's age and women's independent and firm performance.

The outcomes of the current study demonstrate that between 2016 and 2018, there was a major rise in the number of leading PLCs that adhered to the regulation that boards should contain at least 30% women directors. This result suggests that among the top 100 PLCs, boards are recruiting more women directors in accordance with the government policy of 30% of women in decision-making positions. The results also indicate that companies should focus on the composition and features of the board before recruiting members. It was found that taking into account the women on audit committees and as CEOs or chairpersons are essential elements that can help improve company performance.

The current study adds contributions to knowledge in several ways. Firstly, the current research augments the existing literature by investigating the connections between women representation on directorial boards, women's attributes and company performance. The results in general indicate that on average, the top 100 PLCs in Malaysia have no issues complying with the policy. Nevertheless, the results also indicate that there are still non-compliant companies with zero women on their boards. Policymakers may need to determine the reasons behind their non-compliance and reluctance. It can be expected that the remaining PLCs that are still unable to comply may have the same issues, hence remedial action can be formulated to address the all these problems simultaneously. Furthermore, this paper might help any investor to make wiser judgements and cause greater attention to be devoted to the important roles played by women as members of directorial boards, such as creating value and enhancing company performance. Hence, this might bring about greater public understanding of the numerous factors that are the key determinants of firm performance in Malaysia's capital market.

Nevertheless, the current study contains several limitations. First, the study did not test endogeneity, and thus the model estimation and the results of the study may be biased. Future studies in this area should consider endogeneity in their research design, analysis and interpretation of their findings as failure to adjust for omitted variable bias and dynamic endogeneity may lead to wrong inferences (Abdallah, Goergen, & O'Sullivan., 2015). Second, the study sample consisted of only the top 100 PLCs and excludes the financial sectors, which may affect the generalisation of the results. Thus, future studies may be expanded and investigate more if not all PLCs on Bursa Malaysia for a more comprehensive and reliable results. Furthermore, the current study covers the period from 2016 to 2018 only; investigating a longer period may offer better reflection of the role of women representation on the board and their influence on firm performance over time. In the future, researchers can examine the number of women directors in terms of critical mass; this feature would ascertain the true difference made by the number of women on a board.

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