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Is gender diversity the next frontier on boardroom in the construction industry?

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ABSTRACT

The paradigm that posits women as unsuitable corporate leaders has become a heated topic for debates prompting boardroom gender diversity to be a popular corporate governance issue. Based on the business case for gender diversity, this study examines the effect of boardroom gender diversity from an industry-specific perspective, particularly in the construction industry in Malaysia. The study follows a quantitative research method and uses panel data from 80 listed construction firms for the period between 2010 and 2019. To obtain a comprehensive measure, gender diversity is proxied by the proportion of female directors on the board, Blau's Index, female CEO, female CFO, female directors' education, and previous experience. Contrary to several past research, the results show no significant effect from gender diversity proxies on firm performance measured by Tobin's Q, while only female CEO has a significantly negative effect on ROA. Thus, the current study found no evidence to posit a business case for board gender diversity in the context of the Malaysian construction industry. The results may not reflect the true picture considering the small sample size employed or the cultural resistance and tokenism issue that still exists in society. The research findings extend the literature on emerging economies and have important implications for the industry, policymakers, and society.

1.0 INTRODUCTION

Ensuring the high-profile corruption incidents like Enron in 2001 and World Com in 2002, the corporate world has since become especially vigilant on their business affairs: shifting their attention to the composition of a corporate board to ensure such scandals do not occur through a robust system monitoring

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the top management. Corporate governance practices globally have been given the utmost importance, particularly for publicly listed companies (Yap et al., 2017).

The key to an effective board is the right composition of the board which entails a diverse mix of expertise, literacy, experiences, and other attributes that align with the strategic goals of the company. Gender diversity on corporate boards is an aspect that has garnered a significant amount of attention and priority from researchers, business leaders, and policymakers. The familiar thirty percent quota representation of minority gender, precisely female directors, is a prospective ratio according to Dahlerup (2006) which ensures that although they are a minority, so long as the critical mass of at least three women is reached, they will form a voice (Kramer et al., 2006; Rosener, 1997). The emphasis on gender diversity in corporate boards aligns with the principles of Sustainable Development Goal 5 (SDG 5) on gender equality, which aims to achieve gender parity and empower women worldwide.

Based on Shrader et al. (1997), although women seem to have made strides into managerial levels, unfortunately, the upper echelons are still the bastion of men. To date, the Global Gender Gap score stands at 68.6 per cent, with the remaining 31 per cent gap to close now - albeit an improvement from previous years (World Economic Forum, 2020). Gender diversity in the workplace eventually became a much-debated topic that has garnered the attention of researchers, business leaders, and policymakers.

In Malaysia, discriminations are still prevalent in the corporate world. In the past and as with any region in the world, women are commonly associated with conventional household-related work. In the corporate world, women's presence might merely be perceived as meeting a government requirement rather than granting them the authority and responsibility for decision-making and oversight (Merara et al., 2021; Hatane et al., 2023). The Malaysian government responded to the underrepresentation of women in corporate boards by implementing a boardroom gender quota policy urging companies to have at least thirty per cent of women directors on the corporate board by 2020. The new policy was implemented in 2011 as outlined in Practice 4.5 of the Malaysian Code of Corporate Governance (MCCG).

To further facilitate this, Bursa Malaysia issued a circular in 2014, which disclosed all publicly listed companies' gender diversity as a requisite in their annual reports. The road to achieving equal rights and opportunities is still long as women still struggle to prove their competence and continue to face defiance due to discriminatory laws and policies, gender-based stereotypes, and ubiquitous social norms. Often, gender becomes a factor of employment and promotion especially in a male-dominated industry due to perceptions depicting women as a frailer gender than men and prejudices towards their capability. Thus, it appears that the glass ceiling has not cracked yet.

A company is believed to be able to reach its full potential in performance should there be an equitable number of men and women in every echelon of the corporation. This is reflected in McKinsey Global Institute (MGI) findings whereby an additional GDP of 26 per cent of annual global GDP is achievable by 2025 if and only if the participation of men and women is on par in the workforce. The Gender Gap Index of Malaysia indicates that despite having improved over the years, Malaysia is still below the average global gender gap index. The Corporate Governance Monitor 2020 report published by the Securities Commission of Malaysia (2020) revealed that all publicly listed companies in Malaysia have 16.96 per cent of women portrayed on corporate boards whereas, for the Top 100 listed companies, females constitute 24.82 per cent of the board. Overall, over 80 per cent of Malaysian publicly listed companies failed to achieve the 30 per cent women quota imposed.

The construction industry is construed as a notoriously male-dominated profession where vertical segregation is common. Women in this industry are perceived to be less of a caliber than their male counterparts and unfitting for such a working environment. A study on the duty and performance of

Malaysia's construction sector over the past twenty years of Vision 2020 showed a strong correlation between the construction sector and Malaysia's economic growth (Khan et al., 2014). Presently, immense changes can be seen in the industry as it has become more advanced, modernized, and well-equipped compared to decades ago. The construction industry is indispensable to the development of the economy to realize the aspiration of becoming a developed nation. Consequently, it is crucial to investigate if the inclusion of women in a male-dominated industry like construction could bring added benefits.

Mounting global evidence points to the advantages of having a greater representation of women on boards and senior management. Firms that strive for balance in the upper quartiles and implement gender diversity policy should anticipate several advantages such as improved financial performance, robust decision-making, a wider talent pool, and improved business morale and reputation. The Economist Intelligence Unit and International Finance Corporation (IFC) emphasize the significance of paying more attention to the gender disparity in the executive cadre and boardroom of Southeast Asia's companies as they found an apparent link between firms with more female board members and greater financial performance after conducting a comprehensive analysis on over 1000 companies in six ASEAN countries (IFC, 2019). However, a negative association was found in several studies between gender diversity and firm performance (Abdullah & Ismail, 2013; Adams & Ferreira, 2009). Based upon the absence of unanimity in finding it is crucial to continue exploring the nuances of this issue to give readers a better understanding of the matters concerned. This leads to the objective of this study, which is to investigate the relationship between gender diversity in the boardroom and firm performance of the construction industry in Malaysia, the most influential industry in the country's economy.

To have a clearer picture, this study specifically aims to investigate the relationship between the proportion of female directors on board, the presence of women CEO, the presence of women CFO, female directors with an advanced level of education, and the experience of female directors on the performance of the construction industry in Malaysia. A rigorous examination from an industry-specific angle is crucial to ascertain if women's portrayal in a male-dominated industry brings added interest to the firms: case in point a board with shrewd business acumen. As most prior literature is heavily centered on developed countries, a study from the standpoint of a developing country is much needed to adjoin the prevailing research gap. This study possesses significant implications for the industry, corporations, policymakers, shareholders, scholars, and society. The results attained will furnish them with a better understanding of the significance of gender diversity in the workplace and if the implementation of gender quotas is relevant to the industry or region. A shred of conclusive evidence on the impact of board gender diversity will aid them in aligning their future endeavors, and determining if the gender quota policy should be further strengthened or loosened. Additionally, this research aligns with Sustainable Development Goal 5, emphasizing achieving gender equality and empowering all women and girls. By investigating the relationship between gender diversity in the boardroom and firm performance in Malaysia's construction industry, this study seeks to advance progress towards SDG 5 by providing insights into the importance of gender diversity in fostering inclusive and equitable workplaces.

2.0 LITERATURE REVIEW

Given the lack of women in the upper echelons of corporations, gender diversity eventually became one of the most notable spectra of board composition. In a workplace, gender diversity sees both men and women being hired at a similar rate, given equal opportunities for job promotion, and not forgetting getting paid equally. The United Nations reported that over the last quarter of a century, the participation of working-age women in the labour market has remained stagnant (Rakshit, 2020).

On top of that, managerial positions held by women only make up 28 per cent globally in 2019 which was nearly as much as that in 1995 while there are only 7.4 per cent or 37 female Chief Executive Officers

in 2020 among Fortune 500 firms. Besides that, it was disclosed in the sixth edition of Deloitte Global's report entitled "Women in the Boardroom: A Global Perspective" that only 16.9 per cent of board seats worldwide are held by women, an increment of 1.9 per cent from the previous edition (Deloitte Global, 2019). Other than that, women hold only 5.3 per cent of board chair positions, 4.4 per cent of CEO roles and 12.7 per cent of CFO roles globally. Often, female directors in the boardroom are deemed as a minority and where there is only one female director on a board, her contributions may not be significant or even taken into consideration due to lack of trust (Pasaribu et al., 2019). This scenario is referred to as tokenism whereby firms only appoint female directors to merely show adherence to certain laws imposed.

Kanter (2008) introduced the Critical Mass theory which argues that whenever a minority gender in a team comprises below 35 per cent, they are assumed to be not as productive as they could have been due to a reduction of their social category. A study by Schwartz-Ziv (2015) discovered that during board meetings, they are at least 79 per cent more active when they constitute at least three directors of each gender. This is in line with arguments by several researchers, Rosener (1997), Shrader et al. (1997), and Kramer et al. (2006) who claimed that a critical mass of at least three women directors; approximately one-third of most corporate boards is the catalyst for board performance. Unless this critical mass is reached, otherwise significant improvement may not be reflected from female representation on board. Dahlerup (2006) also mentioned that a 30 per cent representation of the minority gender, to be exact female directors, is a prospective ratio which ensures that even if they are a minority, they can still make a difference by forming a large minority. As specified by the critical mass theory, for the representation of women directors on board to show desired effect, at least three or more of them should be appointed (Brahma et al., 2021).

Boardrooms continue to be dominated by men even though there has been a considerable improvement in women's representation in corporate boards for some states which complements the European Commission's attempt (European Union, 2019). Corporate boardrooms in developing countries are still sceptical towards such policy due to conformity to social norms depicting women as having the sole responsibility to perform family and household duties (Yap et al., 2017). Such mentality is preventing Asian women from advancing the corporate ladder, thus steering the boards into perspective purporting the insignificance of gender diversity towards firm performance. Today, educational gaps between men and women are significantly narrowed following the heightened economic and educational development globally. Females who aspire to attain a position on the corporate board are driven by the "glass ceiling" which impedes women from advancing the corporate ladder to acquiring greater human capital as opposed to their male counterparts (Singh et al., 2008). Women's portrayal in the top hierarchy of a firm may have vital repercussions for firm performance as to the broad range of experience and potential which is way beyond the social and ethical implications (Adams & Ferreira, 2009).

The resource dependency theory construes that women directors could provide distinct advantages to a firm, for instance, advice and counsel, connections with resources and legitimacy because they are believed to carry values which differ from that of male directors like prestige, legitimacy, skills, competence, and knowledge (Hillman et al., 2007). Female directors are more conscientious when executing their tasks and responsibilities such as attending board meetings and overseeing operations as compared to male directors. Other than gender, the theory also manifests the need for diversity in terms of race, expertise, background and many more. Proposed by Hambrick and Mason (1984), the upper echelon theory imparts a coherent foundation for relating particular characteristics or corporate hierarchy diversities with firm performance stating that "the organisation is a reflection of its top managers". Adams and Ferreira (2009) construed that women's portrayal in corporate upper echelons could potentially uplift diversity in the team be it social structure or human capital.

2.1 Empirical Evidence

Sen and Mukherjee (2019) revealed that the proportion of independent female directors on the board is positively related to firm performance upon controlling for board size, firm size and leverage. Building on an Asian-based sample, Low et al. (2015) found a positive link between the increasing number of women on board and the return on equity of Hong Kong, South Korea, Malaysia, and Singapore firms. They assert that where female economic participation and empowerment are higher, the positive effects decrease. This implies that the effect of gender diversity in the boardroom on the financial performance of a firm is largely moderated by the attitude of the country towards women at work. Correspondingly, findings also point out that strategic orientation and firm culture moderate the influence that gender-diverse top hierarchy management has on firm performance (Dwyer et al., 2003). A study in China discovered that the presence of female CEO has a positive relationship with the return of assets (Liu et al., 2014). Using data from 54 large Colombian public firms, Moreno-Gomez et al. (2018) attained results showing an apparent positive effect of gender diversity on CEO position and top management team performance. This is in line with Carter and William (2003) who indicate that appointing women to top management positions not just shows adherence to ethical considerations but also creates value for the business due to broadened expertise and female management style that women possess.

Brahma et al. (2021) found that female directors with a Master's Degree or Doctor of Philosophy (PhD) are positively and significantly associated with return on assets and Tobin's Q. Furthermore, they also found that when there are three or more females in the board, positive results became hugely significant and indisputable as opposed to the effect observed when there are two or fewer females. The findings emerge to be in harmony with that of Liu et al. (2014) and Pasaribu et al. (2019) and congruence with the critical mass theory which postulates that when there are three females and above on a corporate board, they represent a voice.

In contrast, Abdullah and Ismail (2013) uncovered a negative association between gender diversity with firm performance while Adams and Ferreira (2009) postulate a negative relationship connecting boardroom gender diversity and firm performance on average. Carter et al. (2010) add to the pool of contrasting results with no significant relationship between gender and ethnic diversity on board and firm performance for major companies in the United States. They suggest that it could be due to the different circumstances and times under it which ultimately offsets the results.

These findings are consistent with that of Rose (2007), and Shukeri et al. (2012). To harmonize the inconsistent findings, Post and Bryon (2015) examined whether those results vary due to firm regulation and socio-cultural context by combining results from 140 studies statistically. It was discovered that women's representation on board is positively associated with accounting returns whereby the stronger the shareholder protections of a country, the more positive the relationship is. This is believed to have been brought about by the motivation that shareholders give to boards on leveraging the wide array of knowledge, encounters and resources that each person on the board possesses. Whilst the market performance faces a combination of a positive and negative relationship with a gender-diverse board, the former prevails in countries where gender parity is greater. Consensus on whether the relationship between board gender diversity and firm performance is positive or negative is still absent, leading it to be one of the most debatable issues among researchers.

2.2 Hypothesis Development

Gender Diversity on the Board

The effect of gender diversity in the boardroom has been examined by an extensive line of researchers from across the world. However, the results are inconclusive. Johl et al. (2015) discovered that women's participation in Malaysian publicly listed firms' boards impacts positively towards firm performance, ROA. Similarly, Khan et al. (2017) and Moreno-Gomez et al. (2018) respectively obtained results showing a

positive relationship between gender diversity and ROE. Furthermore, the inclusion of female directors into the corporate board has statistically proven positive effects on three firm performance measures which are ROA, ROE and ROS in Turkey's corporate boardroom Kılıç and Kuzey (2016). Thus, the following hypothesis is derived:

H1: There is a positive relationship between gender diversity on the board and the performance of construction firms in Malaysia.

The proportion of Female Directors

Pasaribu et al. (2019) showed marginal improvement in firm performance from having females in the boardroom and impact became more evident for firms with two or more female directors. Brahma et al. (2021) discovered that three or more females are the amount needed to manifest a positive effect on firm performance significantly. These findings are consistent with Rosener (1997), Shrader et al. (1997), and Kramer et al. (2006) who assert that the catalyst for board performance is a critical mass of three women directors at the least: approximately one-third of most corporate boards. Findings are supported by the Critical Mass theory developed by Kanter (2008) which states that for a minority gender to perform optimally, they should comprise at least 35 percent of the team. Thus, we postulate the following hypothesis:

H2: There is a positive relationship between the proportion of female directors on board and the performance of construction firms in Malaysia.

Female CEO

Liu et al. (2014) found the presence of a female CEO affects the return on assets positively. They suggest that the primary source of beneficial effects on firm performance comes predominantly from women executive directors. To reinforce the evidence, Moreno-Gomez et al. (2018) also found empirical evidence postulating the positive and significant effect of female CEO when firm performance is measured by ROA. Hence, it is evident that females have management styles (i.e., enhanced collaboration and decision-making) that are favourable to business performance. Based upon the following arguments and evidence, we hypothesised that:

H3: There is a positive relationship between the presence of female CEO and the performance of construction firms in Malaysia.

Female CFO

The CFO is another top executive working alongside the CEO, who has the primary responsibility of managing corporate finances. Carter et al. (2010) argued that women are more cautious, less overconfident, and naturally more risk-averse than men. These qualities will prevent female CFOs from entering into risky investments and ensure that financial budgeting and forecasting are carefully structured to be consistent with the business needs. Chadwick and Dawson (2018) found that in a female-led organization whereby their CEO and/or CFO are occupied by females, they outperformed the firm's financial performance of male-led organisations in non-family businesses. Hence, we propose the following hypothesis:

H4: There is a positive relationship between the presence of female CFO and the performance of construction firms in Malaysia.

Female Directors with Advanced Education

Educational level is among the most influential demographical constructs when considering gender diversity. Carter et al. (2010) assert that women on board are more likely to possess advanced degrees than male directors do. Following the upper echelon theory, knowledge and intellectual skills are perceived to increase with the level of education. This is consistent with an argument by Bantel and Jackson (1989)

stating that the cognitive capacity and competence of an individual are enhanced with a higher level of educational attainment, thus able to make high-quality decisions. This conjecture is supported by Brahma et al. (2021) who revealed a positive relationship between the level of education and the financial performance of firms after appointing female directors to the board. Hence, this led us to the expectation of greater firm performance by appointing female directors with advanced education levels.

H5: There is a positive relationship between female directors with advanced education and the performance of construction firms in Malaysia.

Female Directors with Past Experience

Cambrea et al. (2017) included experience as one of the variables which they divide into two categories namely professional experience and international experience. Findings proved that those who had spent time overseas serving as top managers contribute significantly to organisational performance as they possess an intangible and valuable resource that firms need. These are consistent with Goethals' (2003) arguments that having industry-specific managerial experience in the past could contribute to the competitive advantage and mitigation of liability of newness to the firm. In line with the resource dependency theory, female directors with prior experience could furnish the board with a diverse outlook and ties with external organisations, bringing solidarity and improved corporate governance (Wang, 2020). Hence, we present the following hypothesis:

H6: There is a positive relationship between female directors with experience and the performance of construction firms in Malaysia.

3.0 METHODOLOGY

This study follows a quantitative research method which employs secondary data. The selected period of observation is from 2010 to 2019 (10 years). A total of 80 Malaysian firms which are listed on the main market of Bursa Malaysia are chosen, of which 50 firms are in the construction sector while the remaining 30 firms are from the property sector whose core business is heavily involved in construction activities. The period is chosen as advances in gender equality on boards have increased since greater attention has been placed on this aspect. The construction industry is chosen due to it being a notoriously male-dominated industry making it a suitable arena to investigate the impact of gender diversity. Financial data of respective firms are retrieved using the Orbis database whereas non-financial data are collected manually from the annual report.

In this study, gender diversity is measured using six variables, which are the proportion of female directors on the board, Blau's Index, female CEO, female CFO, female directors with advanced education, and female directors with experience. Meanwhile, firm performance is measured by return on assets (ROA) and Tobin's Q. On the other hand, the control variables established are board characteristics which consist of board size and board independence while firm characteristics included are firm size, firm age, and leverage. The panel regression analysis has been carried out and this study also employed several diagnostic tests such as the Breusch Pagan Lagrangian Multiplier (LM) test, Hausman test, Breusch-Godfrey (BG) Serial Correlation LM test, White's General Heteroscedasticity test, and Multicollinearity test which aids in the determination of the most appropriate model for this study. This study employed seven Estimation Models; the function of the regression models employed are shown below:

Baseline Model

$$FP_{it} = \beta_0 + \beta_1 LNBSIZE_{it} + \beta_2 BINDEP_{it} + \beta_3 LNFSIZE_{it} + \beta_4 LNFAGE_{it} + \beta_5 LEV_{it} + \varepsilon_{it}$$

Regression Model 1

$$FP_{it} = \beta_0 + \beta_1 GENDIV_{it} + \beta_2 LNBSIZE_{it} + \beta_3 BINDEP_{it} + \beta_4 LNFSIZE_{it} + \beta_5 LNFAGE_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

Regression Model 2

$$FP_{it} = \beta_0 + \beta_1 FCEO_{it} + \beta_2 LNBSIZE_{it} + \beta_3 BINDEP_{it} + \beta_4 LNFSIZE_{it} + \beta_5 LNFAGE_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

Regression Model 3

$$FP_{it} = \beta_0 + \beta_1 FCFO_{it} + \beta_2 LNBSIZE_{it} + \beta_3 BINDEP_{it} + \beta_4 LNFSIZE_{it} + \beta_5 LNFAGE_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

Regression Model 4

$$FP_{it} = \beta_0 + \beta_1 EDU_{it} + \beta_2 LNBSIZE_{it} + \beta_3 BINDEP_{it} + \beta_4 LNFSIZE_{it} + \beta_5 LNFAGE_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

Regression Model 5

$$FP_{it} = \beta_0 + \beta_1 EXP_{it} + \beta_2 LNBSIZE_{it} + \beta_3 BINDEP_{it} + \beta_4 LNFSIZE_{it} + \beta_5 LNFAGE_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

Full Regression Model

$$FP_{it} = \beta_0 + \beta_1 GENDIV_{it} + \beta_2 FCEO_{it} + \beta_3 FCFO_{it} + \beta_4 EDU_{it} + \beta_5 EXP_{it} + \beta_6 LNBSIZE_{it} + \beta_7 BINDEP_{it} + \beta_8 LNFSIZE_{it} + \beta_9 LNFAGE_{it} + \beta_{10} LEV_{it} + \varepsilon_{it}$$

4.0 FINDINGS

Table 1 displays the descriptive statistics of the sample data, the mean ROA is 3.033 per cent, this is consistent with Auyong and Tan (2018) who obtained an average ROA of 3.047 for the properties sector in Malaysia. Tobin's Q ratio has a mean value of 0.483, this suggests that the average book value of firms is higher than their market value. Since the Q ratio is less than 1.0, collectively firms in the construction industry are linked to poorer employment of resources (Campbell & Minguez-Vera, 2008). Besides that, the lower Q ratio also indicates failure in leveraging investments to boost their market value apart from reflecting lower expectations of future earnings from the market.

Table 1. Descriptive statistics for sample firms

Variable	Obs	Mean	Std. Dev	Min	Max
ROA	767	3.0708	7.1704	-52.17	49.97
TobinsQ	635	0.4829	0.4549	0.03	5.05
PWOMEN	755	0.0977	0.1112	0	0.5
BLAU	755	0.1516	0.1602	0	0.5
FCEO	755	0.0384	0.1923	0	1
FCFO	714	0.3403	0.4741	0	1
EDU	755	0.1318	0.3249	0	1
EXP	755	0.2574	0.4131	0	1
BSIZE	755	7.3231	1.8715	4	14
BINDEP	752	0.4694	0.1291	0.1111	0.8571
LEV	768	0.4947	0.2353	0.0032	3.05312
logFSIZE	768	8.7744	0.7653	4.8559	10.5267
FAGE	792	26.3863	13.3555	1	68

Notes: ROA (return of assets), TobinsQ (approximation of Tobin's Q), PWOMEN (proportion of women directors on the board), BLAU (approximation of Blau's index of diversity), FCEO (dummy variable that takes the value of 1 if there is a female CEO and 0 otherwise), FCFO (dummy variable that takes the value of 1 if there is a female CFO and 0 otherwise), EDU (proportion of female directors with advanced education), EXP (proportion of female directors with experience), BSIZE (total number of directors on the board), BINDEP (proportion of independent directors on the board), LEV (total debt over total assets), FSIZE (natural logarithm of the total assets of the firm), and FAGE (the number of years since incorporation).

The mean value of PWOMEN indicates that on average only 9.69 per cent of the board seats of firms in the construction industry are occupied by women. The representation of women on the boards of listed construction firms in Malaysia is still very much lower than the recommended 30 per cent gender quota policy. However, an increasing trend in PWOMEN has been observed in the construction industry from

2010 to 2019 as shown in Figure 1. Also measuring gender diversity, Blau's index of diversity ranged from 0 to 0.5 and has a mean value of 0.151, similar to the value reported by Yap et al. (2017). This further postulate that there is an immensely low representation of women in the boardroom of Malaysian construction firms.

Approximately 4 per cent of the total sample firms have female CEO while 34 per cent has female CFO. Next, 13.18 per cent of female directors in the construction industry have Master's and PhD degrees while female directors with experience in other firms of the same industry are about 25.74 per cent. The BSIZE has a mean value of 7.8, a minimum of 4 and a maximum of 14. BINDEP constitute 47.27 per cent of board members in the sample firms which is lower than the 60 per cent board independence in Amin and Nor (2019) for the Malaysia construction industry. LNFSIZE has a mean value of 8.77 whereas FAGE has a mean value of 26 years. Lastly, the LEV of the construction industry in Malaysia was found to be 49.47 per cent on average which is slightly higher than the 47 per cent leverage obtained by Amin and Nor (2019) within the five years of their observation.

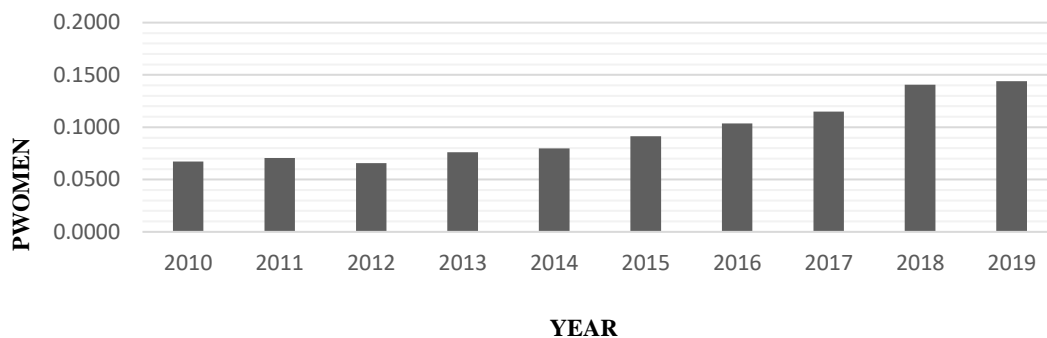


Fig. 1. The proportion of Women Directors in the Construction Industry from 2010 to 2019

Note: X-axis is the years included in this study and Y-axis is the proportion of women directors (PWOMEN) for each year, computed by averaging the proportion of women directors from each sample firm over the 10 years.

Table 2. Pearson's Correlation Coefficient Matrix

	ROA	Tobin's Q	PWOMEN	BLAU	FCEO	FCFO	EDU	EXP	LNBSIZE	BINDEP	LNFSIZE	LNFAGE	LEV
ROA	1												
Tobin's Q	.082**	1											
PWOMEN	.081**	-0.053	1										
BLAU	.083**	-0.050	.981***	1									
FCEO	-0.018	-.110***	.234***	.218***	1								
FCFO	.059	-0.034	.096**	.127***	-.088**	1							
EDU	.035	-0.001	.312***	.331***	.060*	.072*	1						
EXP	.098***	.116***	.500***	.537***	.026	.082**	.225***	1					
LNBSIZE	.033	-.109***	.037	.074**	.028	-0.013	.068*	.059	1				
BINDEP	-.085**	-.100**	-0.027	-0.043	-0.015	-0.049	.041	-.124***	-.342***	1			
LNFSIZE	.094***	-.231***	.049	.060*	.178***	.084**	.057	0.031	.309***	-0.048	1		
LNFAGE	-0.024	-0.024	.097***	.113***	.020	-0.004	.065*	.131***	.075**	-0.029	.024	1	
LEV	-.243***	-.266***	-0.077**	-.067*	-.017	-0.058	-0.024	-0.034	.151***	-0.011	.132***	-0.005	1

Note: *, **, *** shows the statistical significance of correlation at 10%, 5%, and 1% levels (2-tailed).

Table 2 shows the Pearson correlation analysis results which depict the magnitude of linear association among pairs of variables employed in this research.

This research employs three regression models in examining the impact of board gender diversity on firm performance to ensure robust results. Table 3 presents the panel regressions result of Tobin's Q with board gender diversity measures and other explanatory variables. As diagnostic tests had proven the fixed effect model to be most appropriate, hence fixed effect with robust standard errors was analysed and discussed. As shown in Model 1(a), PWOMEN was found to have a significant negative impact on Tobin's Q. In line with Darmadi (2013), the finding suggests that an increase in the proportion of female directors causes declining market performance and lowers growth opportunities in the future. The result documented no evidence of a significant relationship between the PWOMEN on the board and Tobin's Q when tested with other explanatory variables. Empirical evidence obtained proved that there is no association between Blau's index and Tobin's Q. This implies that gender diversity on the board does not pose any effect on the market value or future growth opportunities of firms in the construction industry.

Table 3. Main Model Regression Results for Tobin's Q

	Baseline	Model 1		Model 2	Model 3	Model 4	Model 5	Full Model	
	Model	a	b					a	b
PWOMEN		-0.4948** (0.2115)						-0.4248 (0.2868)	
BLAU			-0.3163** (0.1595)						-0.2930 (0.2368)
FCEO				-0.0584 (0.0391)				0.0326 (0.0517)	0.0327 (0.0526)
FCFO					0.0531 (0.0760)			0.1026 (0.0798)	0.1054 (0.0784)
EDU						-0.1991* (0.1101)		-0.1402 (0.1059)	-0.1409 (0.1083)
EXP							-0.1117 (0.1245)	-0.0032 (0.1177)	0.0019 (0.1224)
LNBSIZE	0.0611 (0.0959)	0.0393 (0.0996)	0.0498 (0.0978)	0.0691 (0.0986)	0.0889 (0.0948)	0.1142 (0.0841)	0.0734 (0.0899)	0.1275 (0.0859)	0.1352 (0.0866)
BINDEP	-0.3113 (0.1944)	-0.3535* (0.1976)	-0.3542* (0.1974)	-0.3034 (0.1972)	-0.4069** (0.1951)	-0.2477 (0.1913)	-0.3141 (0.1945)	-0.3689* (0.1984)	-0.3680* (0.1990)
LNFSIZE	-0.0799 (0.0654)	-0.0810** (0.0412)	-0.0823** (0.0410)	-0.0801 (0.0655)	-0.1547** (0.0605)	-0.0794 (0.0649)	-0.0789 (0.0663)	-0.1492** (0.0607)	-0.1484** (0.0610)
LNFAGE	-0.3366*** (0.1198)	-0.1552*** (0.0583)	-0.1557*** (0.0590)	-0.3350** (0.1202)	-0.2691** (0.1168)	-0.3145*** (0.1154)	-0.3110** (0.1204)	-0.2476** (0.1089)	-0.2514** (0.1103)
LEV	-0.6387*** (0.1546)	-0.6204*** (0.1332)	-0.6199*** (0.1334)	-0.6381*** (0.1545)	-0.5501*** (0.1609)	-0.6215*** (0.1495)	-0.6418*** (0.1528)	-0.5531*** (0.1593)	-0.5505*** (0.1589)
R ²	0.0613	0.0980	0.0971	0.0632	0.0825	0.0565	0.0515	0.0797	0.0786
F-Statistics	8.27	42.20	42.39	9.89	8.62	7.46	7.13	8.65	9.17
Prob(F-statistics)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Number of Observations	635	635	635	635	596	635	635	596	596

Note: The robust standard errors are reported in parenthesis. *, **, *** shows the statistical significance at 10%, 5%, and 1% levels

On the other hand, the FCEO and FCFO showed no significant effect on Tobin's Q. These insignificant effects may be because there is only a small portion of firms appoint females to these positions in the sample firms. Next, EDU appeared to have no association with Tobin's Q. Finding is in harmony with Sen and Mukherjee (2019) and Wang (2020) who equally found no linkage between highly educated female directors and firm performance. As for EXP, there is also no significant relationship between female directors with experience and Tobin's Q. Such outcome indicates that the market value of construction firms in Malaysia is not affected by the appointment of female directors with past industry-specific experience and who served in directorial positions.

BINDEP, LNFSIZE, LNFAGE and LEV showed a significant negative relationship with Tobin's Q. This posits that as board independence, larger firm, older firms and higher leverage firms tends to decrease in future growth opportunities and market profitability. The remaining control variable, which is LNBSIZE, appeared to have no significant relationship with the firm performance proxied by Tobin's Q.

Additional tests are conducted to enhance the robustness of results by replicating the regression models in Table 3. Table 4 presents the random effect panel data regression result when firm performance is proxied by ROA. The regression results failed to detect a significant relationship between the PWOMEN and BLAU with ROA. Findings inconsistent with Campbell and Minguez-Vera (2008) but support Adams and Ferreira (2009), Shukeri et al. (2012), and Amin and Nor (2019) who also discovered female directors' inclusion to be insignificant.

Table 4. Additional Test Regression Results for ROA

	Model 1		Full Model	
	a	b	a	b
PWOMEN	7.6174 (8.6157)		4.7559 (6.2767)	
BLAU		5.0403 (5.5774)		3.4636 (4.6282)
FCEO			-3.2168** (1.3271)	-3.2148** (1.3275)
FCFO			0.1441 (1.1860)	0.1115 (1.1761)
EDU			-0.5367 (1.8540)	-0.5702 (1.8585)
EXP			1.2727 (1.6476)	1.2026 (1.7139)
LNBSIZE	2.1949 (4.7534)	2.0150 (4.6806)	0.5362 (3.4884)	0.4439 (3.4700)
BINDEP	-5.6368 (7.0862)	-5.6183 (7.1169)	-6.2855 (5.6309)	-6.2963 (5.6334)
LNFSIZE	2.0869 (1.5609)	2.1050 (1.5478)	1.2896 (0.9704)	1.2910 (0.9721)
LNFAGE	-5.4045** (2.4061)	-5.4397** (2.4101)	-0.5897 (0.7521)	-0.5930 (0.7510)
LEV	-21.5463** (8.1962)	-21.5821** (8.2448)	-17.5594*** (5.0016)	-17.5876*** (5.0286)
R²	0.0690	0.0689	0.1001	0.1001
F-Statistics	4.78	4.84	39.65	40.17
Prob(F-statistics)	0.0003	0.0003	0.0000	0.0000
Number of Observations	755	755	714	714

Note: The robust standard error is reported in parenthesis. *, **, *** shows the statistical significance at 10%, 5%, and 1% levels

Noticeably, the presence of female CEO in construction firms is negatively associated with ROA. Findings reinforce past studies of Yasser and Mamun (2016) who found a negative and significant effect of female CEOs on Asian companies. The other C-suite role tested in this research is the CFO position. Although the percentage of female CFOs in the total sample is nearly ten times that of female CEOs, regression results proved the absence of a significant effect coming from the presence of female CFOs on firm performance. This suggests that there could be other external pressure or executives who assumed a more significant function in terms of superintending the asset and earnings management of the sample firms.

Subsequently, having female directors with advanced education on the board does not pose any effect on ROA. Likewise, there is no relationship between female directors with past industry-specific experience and firm performance. This contradicts Wang (2020) and Kor (2003) who assert that having had long tenure serving directorial positions across different firms in the industry leads one to acquire diverse resources and profound comprehension regarding the operation of the construction domain, thus having shrewd business acumen. In contrast with the main regression model (proxy by Tobin-Q), all the board and firm control measures except leverage do not have any significant impacts on ROA.

Table 5 regression was also replicated using PMEN, MCEO, and MCFO as an alternative measure of diversity. Table 5 shows the regression result for the effect of the proportion of men, presence of male CEO, and presence of male CFO on the market performance of firms proxied by Tobin's Q. PMEN is found to be impacting Tobin's Q positively and significantly at 5 per cent level. This suggests that when male directors constitute a larger portion of the board, the firm will be expecting enhanced market performance, firm value, as well as an increase in future earnings. However, this regression failed to detect any significant relationship between MCEO and MCFO with firm performance.

Table 5. Additional Test Regression Results for Tobin's Q

	Baseline Model	Model 1	Model 2	Model 3	Full Model
PMEN		0.4948** (0.2115)			0.6702** (0.2748)
MCEO			0.0584 (0.0391)		-0.0170 (0.0593)
MCFO				-0.0531 (0.0760)	-0.0872 (0.0723)
LNBSIZE	0.0611 (0.0959)	0.0393 (0.0996)	0.0691 (0.0986)	0.0889 (0.0948)	0.0949 (0.0965)
BINDEP	-0.3113 (0.1944)	-0.3535* (0.1976)	-0.3034 (0.1972)	-0.4069** (0.1951)	-0.4003** (0.1989)
LNFSIZE	-0.0799 (0.0654)	-0.0810** (0.0412)	-0.0801 (0.0655)	-0.1547** (0.0605)	-0.1505** (0.0614)
LNFAGE	-0.3366*** (0.1198)	-0.1552*** (0.0583)	-0.3350*** (0.1202)	-0.2961** (0.1168)	-0.2297** (0.1102)
LEV	-0.6387*** (0.1546)	-0.6204*** (0.1332)	-0.6381*** (0.1545)	-0.5501*** (0.1609)	-0.5708*** (0.1627)
R²	0.0613	0.0980	0.0632	0.0825	0.0896
F-Statistic	8.27	42.20	9.89	8.62	8.19
Prob(F-statistics)	0.0000	0.0000	0.0000	0.0000	0.0000
Number of Observations	635	635	635	596	596

Note: The robust standard errors are reported in parenthesis. *, **, *** shows the statistical significance at 10%, 5%, and 1% levels

The absence of association between MCEO and MCFO with Tobin's Q may reflect the nature of the industry which does not depend heavily on C-suite level executives to generate higher market expectations and future growth opportunities for the firm.

5. DISCUSSION

The positive and significant effect of the proportion of men on board validates the notion that men are a better fit for the profession and explains the rationale behind the negative and significant relationship between the proportion of female directors and firm performance. Current or potential shareholders may value a construction firm higher and expect greater future performance should they consist of more male directors on the board. This study finds no statistical evidence that gender diversity plays a role in affecting both firm performance measures, Tobin's Q and return on assets. Findings failed to support the resource dependency theory since the presumed coveted resources that women directors could offer considering their diverse demographic background which is supposedly beneficial to broaden the outlook for strategic decision making did not transpire. The absence of effect on Tobin's Q from having both female CEOs and female CFOs could be associated with the lack of feminine figures acting as a support system in a highly male-dominated industry.

In the context of the construction industry, it can be concluded that women do not excel men in terms of performance in C-suite positions. The absence of a significant relationship between female directors with high educational achievement and both financial and market performance measures is consistent with Rose (2007), Wang (2020) and but opposes that of Brahma et al. (2021) and Darmadi (2013) who obtained a positive significant effect. As this study did not specify the field of Master's and PhD degrees, this could mean that the advanced degree attained by female directors in the sample firms may not align with the knowledge requirement of the industry and did not bring any benefit in enhancing construction firm performance.

The evidence does not support the upper-echelon theory which posits that demographic diversity encompassing the educational background of the board of directors has a substantial influence on firm performance. Experience of female directors seems to have no effect on Tobin's Q and return on assets since there is no significant relationship shown. The lack of sample firms having female directors with past industry-specific experience may play a part in producing insignificant results. Our finding is in contradiction to the positive effect found in past studies and the expectation of a greater competitive edge coming from larger firms but in line with that of Campbell and Minguez-Vera (2008).

6.0 CONCLUSION AND RECOMMENDATION

Women's inclusion in the boardroom of the construction industry has shown a steady increase since 2010, albeit still trailing behind the targeted ideal gender-diverse landscape of 30 percent women representation on boards. This trend underscores the significance of exploring gender diversity within this sector. Furthermore, it extends the existing pool of literature, particularly on non-US studies and from the perspective of developing countries where women are often underrepresented in top management positions. However, despite the growing recognition of the importance of gender diversity, there remains a notable gap in research concerning gender diversity in the construction industry, both in Malaysia and globally. This dearth of literature presents a unique opportunity for our study to contribute to this field. By adopting an industry-specific angle, our research aims to provide insights that transcend past studies, which have predominantly focused on a country-level analysis. Consequently, our study seeks to fill this gap by examining the relationship between gender diversity and firm performance within the Malaysian construction industry.

Our findings, which align with prior studies by Hatane et al. (2023) and Merara et al. (2021), reveal a lack of significant evidence to support a business case for board gender diversity in the context of the Malaysian construction industry. This implies that gender diversity may not significantly influence business performance within this sector, challenging conventional notions regarding its impact on company performance.

Contrary to expectations rooted in resource dependency and upper echelon theories, which posit that gender diversity augments board capabilities and decision-making quality, this investigation presents contrasting evidence. Surprisingly, metrics such as the proportion of female directors, Blau's index, and the presence of female CEOs or CFOs exhibit no discernible correlation with firm performance. Particularly noteworthy is the significantly negative association observed between the presence of a female CEO and profitability, as measured by Return on Assets (ROA). Conversely, a higher proportion of male directors demonstrates a positive relationship with market valuation, as indicated by Tobin's Q.

These findings underscore persistent industry-specific obstacles hindering the advancement of women leaders within the traditionally male-dominated Malaysian construction sector, likely stemming from entrenched cultural biases against women in leadership roles, despite the presence of national policies aimed at fostering gender diversity. Given these results, it is incumbent upon industry stakeholders and policymakers to reassess current strategies aimed at promoting gender equality within construction boardrooms. Rather than employing uniform gender quota policies, targeted interventions addressing the unique challenges encountered by women in this sector are warranted. Such measures might entail the establishment of robust mentoring and support platforms designed to facilitate the advancement of women directors, thereby creating an environment conducive to their professional development and success.

Moreover, it is imperative that future research efforts delve deeper into the intricate interactions between gender diversity and sector-specific performance drivers within the construction industry across developing countries. Utilizing diverse datasets and methodologies will be essential for gaining additional insights into this complex phenomenon. In sum, these implications underscore the necessity for a nuanced and contextually relevant approach to promoting gender diversity within the Malaysian construction industry and beyond.

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9.0 CONFLICT OF INTEREST STATEMENT

All authors declare that they have no conflicts of interest.

10.0 CONTRIBUTION OF AUTHORS

The authors confirm equal contribution in each part of this work. All authors reviewed and approved the final version of this work.

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