Politická ekonomie 2026

Volume 74 (1)
https://doi.org/10.18267/j.polek.1497
Open Access

VŠE / PRAGUE UNIVERSITY OF ECONOMICS AND BUSINESS

Examining the Impact of Board Gender Diversity on Firm Value: Insights from the Pre-COVID-19 Era

Bernard Mnzava

(Email: Bernard.mnzava@ifm.ac.tz), Institute of Finance Management (IFM), Department of Accounting and Finance, Dar es Salaam, Tanzania

Abstract

This study explores the impact of female board representation on firm value prior to the COVID-19 pandemic using a sample of sub-Saharan African quoted companies. Utilizing a robust dataset derived from annual reports of non-financial firms spanning 11 years, the study employs both pooled ordinary least squares (OLS) regression and the system generalized method of moments (GMM) to assess this relationship. In addition, the study conducts supplementary regression analyses with different measures of board gender diversity to validate its findings. The findings reveal a positive and statistically significant correlation between the presence of female board members and enhanced firm value, highlighting the substantial contributions of women to corporate growth in Africa. These results align with previous research, reinforcing the argument for increased gender diversity in corporate governance. The practical implications of this research are significant; it suggests that governments, policymakers and regulatory bodies should implement measures to encourage the appointment of female directors, ultimately fostering improved corporate value. This paper distinguishes itself in the academic literature as the first empirical study focused on the sub-Saharan African context, offering significant insights into the connection between gender diversity on boards and the value of the firm in a region that has traditionally been marginalized in this area. Overall, this research adds to the expanding knowledge of corporate governance by providing new insights into the crucial role of female representation in improving firm value in sub-Saharan Africa.

Keywords: Sub-Saharan Africa, female directors, firm's value, COVID-19 pandemic

JEL Classification: G30, G32, G34

Citation: Mnzava, B.: Examining the Impact of Board Gender Diversity on Firm Value: Insights from the Pre-COVID-19 Era. *Politická ekonomie*, 74(1), 118–141.
https://doi.org/10.18267/j.polek.1497

1. Introduction

For many years, there has been a tendency to appoint male candidates to boards of directors globally. This has led to the perception that knowledge, talent, skills, experience and the capability to tackle corporate challenges are exclusively held by men. Board gender diversity is achieved when both men and women are appointed to ensure a balance of perspectives and enhance corporate performance (Agyemang-Mintah and Schadewitz, 2019). Board gender diversity has various benefits to the firm, which include improving corporate performance, varied talents, reactivity to the market and the capability to toughen its corporate governance policies (Agyemang-Mintah and Schadewitz, 2019).

Overall, there are two streams of literature on gender diversity (Agyemang-Mintah and Schadewitz, 2019). The first suggests that women deserve to be members of the board since they possess qualifications, experience and competent skills (Hillman *et al.*, 2002). The second suggests that women gender diversity within the board leads to better firm governance and performance (Carter *et al.*, 2010). The implication of the second category is that the objective of women directors on the board is merely to enhance firm performance and not otherwise. This paper focuses on the second category and it aims to analytically investigate the effects of female directors on firm value focusing on African quoted firms.

The aim of this study is supported by earlier research. The study by Carter *et al.* (2003) documented that women are furnished with both the skills and credentials needed for nomination to the board. Additionally, the authors documented that boards intentionally discriminate against women directors based on their labels, which is unconnected to their experience and qualifications. Another study claimed that women have diverse experiences and features that make them exceptional compared to traditional directors (Hillman *et al.*, 2002). There is evidence that gender diversity in boards enhances exclusive human capital and board independence (Terjesen *et al.*, 2009). Women are also acknowledged to ask tough questions during meetings and convey unity to managerial positions (*e.g.,* Agyemang-Mintah and Schadewitz, 2019).

Other studies that support the present research are Faff *et al.* (2011) and Perryman *et al.* (2016). Specifically, the research conducted by Faff *et al.* (2011) explored that women are more risk-averse than men in undertaking their businesses and financial decisions. This implies that female directors are less risk-tolerant than men directors in investment decisions. Therefore, a board with a good combination of men and women balances their risk tolerance in decision-making. The paper by Perryman *et al.* (2016) found that heterogeneity in policy making by company boards supports resolution of challenges and improves decision-making.

This research is motivated by several compelling reasons. Firstly, recognizing the vital role of gender diversity in corporate governance particularly in enhancing performance and accountability in emerging markets such as Africa, Tuo *et al.* (2021) emphasized its significance in West Africa. However, this focus reveals a gap, highlighting the need for similar research in other parts of the continent, namely East and Southern Africa. In light of the substantial evidence that highlights the benefits of diversity in decision-making and performance, including improved financial outcomes and enhanced company reputation (Adams and Ferreira, 2009; Campbell and Mínguez-Vera, 2008), this research seeks to shine a spotlight on a region where female representation on corporate boards remains disproportionately low. Addressing this imbalance is essential for fostering a business ecosystem that values diverse perspectives and equitable representation (Terjesen *et al.*, 2016).

Secondly, this study aims to contribute to the academic literature by examining the unique effects of gender diversity on firm value within the sub-Saharan African environment, thereby enriching existing studies that predominantly focus on developed countries (Hillman *et al.*, 2002; Rose, 2007). By doing so, we can offer insights into culturally specific practices and governance structures that may affect the effectiveness of gender diversity in boardrooms (Nguyen *et al.*, 2015). Additionally, this research seeks to inform policymakers and corporate stakeholders about the advantages of increasing female representation on boards. Empirical evidence demonstrates a positive correlation between the presence of women directors and enhanced firm value (Faff *et al.,* 2011; Perryman *et al.,* 2016), which can advocate for practices and policies aimed at advancing gender diversity in the marketplace.

Overall, this paper aims not only to advance theoretical understanding through rigorous empirical analysis but also to provide practical recommendations for enhancing corporate governance in sub-Saharan Africa. The implications of this work extend beyond academia, emphasizing the relevance of gender diversity in fostering an inclusive and efficient business environment (Alharbi *et al.*, 2022).

The rest of this paper is organized as follows: Section 2 explores the theme of gender diversity in the African context. Section 3 focuses on the effects of the COVID-19 pandemic. Section 4 provides an overview of the background and theoretical framework that underpins this research. Section 5 discusses the development of the research hypotheses. Section 6 describes the sample and data used in this study, and the methodology employed is presented in Section 7. The empirical results obtained and discussion are presented in Section 8. Section 9 offers additional testing and robustness checks to further validate the results. Finally, Section 10 provides a comprehensive conclusion and outlines areas for future research.

2. Gender Diversity in African Context

Despite progress, global women's labour market participation lags behind men's by 27% (International Finance Corporation, 2017), primarily due to their overrepresentation in low-wage and part-time jobs and underrepresentation in leadership roles. However, there is a growing trend towards increased participation, benefiting both women and companies. In Africa, women are significantly affecting economic and social development despite facing gender inequality. Notably, in 2017, women in West Africa contributed 63% to social activities, highlighting their essential role in driving progress and improving lives (Tuo *et al.*, 2021).

Board gender diversity is considered a crucial determinant of corporate value and a benchmark of good governance. The shift in gender roles on boards of directors in Africa remains a work in progress. The African Development Bank Group's Gender Strategy for 2021–2025 revealed that women occupy only 12.7% of directors' post across 307 quoted firms in 12 African countries, a figure that falls short of the global average of 17.3% among the 200 largest companies. As the significance of board-level gender diversity becomes more apparent, it is crucial to conduct further research to uncover the effects of increased representation on company value and governance practices. With the increasing adoption of quota policies and initiatives aimed at promoting gender diversity on boards globally, this topic has become increasingly relevant and pressing.

3. Theoretical Framework

3.1 Agency theory

Agency theory suggests that the relationship between ownership and control is crucial in determining the firm's financial performance. According to Berles and Means (1932) and Jenson and Meckling (1976), the separation of ownership from control leads to agency problems, which can be controlled by the board of directors. A varied board, including women, can bring different perspectives and experiences to the decision procedure, ultimately improving the firm's performance (*e.g.*, Ntim, 2015). Adams and Ferreira (2009) argued that the presence of women on corporate boards leads to more rigorous oversight and that women exhibit higher attendance rates at board meetings compared to their male counterparts. Our findings support agency theory, indicating that women on corporate boards positively affect firm value by enhancing monitoring functions and ensuring effective management oversight. It also highlights the importance of board diversity, especially women's inclusion, in improving decision-making and organizational outcomes.

3.2 Stakeholder model

The stakeholder model suggests that corporations ought to enhance the well-being of all stakeholders, which encompasses customers, debtors, employees, creditors, local communities and the government (Finegold *et al.*, 2007; Agyemang-Mintah and Schadewitz, 2019). The stakeholder theory posits that all members provide inclusive support, with each group viewed as contributing essential resources to the firm in exchange for the assurance that their interests will be advocated (Hill and Jones, 1992). Given that stakeholders may have expectations that differ from those of shareholders, they may propose that the composition of the board be modified to align with the interests of all stakeholders, potentially by appointing female directors (Finegold *et al.*, 2007). The stakeholder model argues that including women on company boards is essential for reflecting diverse stakeholder expectations and creating a governance structure that balances the needs of shareholders and the broader community.

3.3 Resource dependence theory

Resource dependence theory posits that companies exist to effectively utilize available resources in order to optimize their financial performance (Pfeffer and Salancik, 1978). A diverse board can influence the organization by effectively connecting with its external environment and leveraging its resources, such as skills, experiences of board members, as well as their prestige and legitimacy (Ntim, 2015). Women can enhance a firm's efficiency and contribute additional resources by introducing diverse attributes, experiences and values to the board (Agyemang-Mintah and Schadewitz, 2019). This study reveals that the presence of gender diversity on corporate boards improves decision-making and aligns firms with external resources, leading to enhance firm value. This supports resource dependence theory, which advocates that women on boards can bring new resources and expertise, efficiency and ultimately enhance firm value.

4. Hypothesis Development

Although no specific theory, including agency theory or resource dependence theory, directly establishes a connection between board gender diversity and firm performance, both theories provide valuable insights into this relationship (Nguyen *et al.*, 2015). According to Carter *et al.* (2010), these theories propose that gender diversity on boards could positively influence firm value. This notion is further supported by an increasing body of research that has identified a correlation between the appointment of women to boards and firm valuation (*e.g.*, Adams and Ferreira, 2009). This small but expanding body of literature

indicates that including women on company boards is not just a symbolic gesture, but rather an important element that can influence firm performance. The connection between board diversity and firm value has been a subject of interest for many years, producing varied results in earlier studies.

Existing literature provides evidence of three main strands of findings. The first group of researchers has found a positive correlation between board gender diversity and firm value, as evidenced by studies conducted by Carter *et al.* (2003), Campbell and Mínguez-Vera (2008), Francoeur *et al.* (2008), Adams and Ferreira (2009), Ntim (2015), Nguyen *et al.* (2015), Gyapong *et al.* (2016), Karavitis *et al.* (2021), Alharbi *et al.* (2022) and Kyaw *et al.* (2024). These studies indicate that companies with more gender-diverse boards are likely to engage in less risky behaviour and attain better performance. Between 2000 and 2010, the studies conducted by Carter *et al.* (2003) and Erhardt *et al.* (2003) presented evidence of a positive association between board gender diversity and firm value, utilizing Tobin's Q as an indicator of financial performance.

Francoeur *et al.* (2008) discovered that companies with a greater percentage of female officers achieved positive and significant returns. Similarly, Campbell and Mínguez-Vera (2008) found that gender diversity positively affects firm value, based on a panel data analysis of companies listed in Spain. Adams and Ferreira (2009) found that a more diverse board of directors, with a greater presence of women, can lead to improved governance and accountability. Specifically, female directors tend to enhance managerial accountability by increasing board meeting attendance and holding CEOs more accountable for their actions. As a result, female directors can act as additional independent voices on the board, strengthening the monitoring function and ensuring that the company is run in a responsible and transparent manner (Adams and Ferreira, 2009).

From 2010 onwards, other research has also provided evidence of a positive link between board gender diversity and firm value. For instance, Gyapong *et al.* (2015) utilized hand-collected data from firms listed in South Africa. The study demonstrated a positive and significant influence of both board gender diversity and ethnic diversity on firm value. Additionally, Nguyen *et al.* (2015) analysed a sample of 120 publicly listed companies in Vietnam and discovered that board gender diversity positively influences firm performance. Galbreath (2016) used data from Australia's largest publicly traded companies to illustrate that the presence of women on boards is positively associated with the firm's financial performance.

Recent research has consistently identified a positive relationship between board gender diversity and firm value. For instance, Karavitis *et al.* (2021) discovered that the presence of women independent directors is linked to high-quality financial reporting, which

subsequently enhances firm value. Similarly, Alharbi *et al.* (2022) discovered a positive relationship between the presence of women on bank boards and bank value, drawing from a distinctive sample of 1,019 bank-year observations across 12 developing countries marked by low levels of women's empowerment and a dual banking system. Moreover, Kyaw *et al.* (2024) revealed that board gender diversity positively influences the relationship between research and development (R&D) and firm value, indicating that R&D does not diminish firm value in organizations with gender-diverse boards during financial crises. Overall, the literature strongly supports a positive correlation between board gender diversity and firm value, suggesting that companies with more diverse boards generally achieve better financial performance.

The second group of researchers has identified a negative relationship between board gender diversity and firm value, as evidenced by studies conducted by Shrader *et al.* (1997), Darmadi (2011) and Alharbi *et al.* (2022). For instance, Shrader *et al.* (1997) found a negative correlation between the proportion of women on the board and the financial value of firms in a study involving 200 American companies. Similarly, Darmadi's (2011) research revealed that having women on a board was linked to a lower Tobin's Q for firms in Indonesia. Additionally, Alharbi *et al.* (2022) discovered that women directors possessing higher education and international qualifications were associated with a decline in bank market value.

The last group of researchers, however, have indicated that there is no significant correlation between board gender diversity and firm value, including research by Rose (2007), Farrell and Hersch (2005) and Carter *et al.* (2010). Rose (2007) conducted a cross-sectional analysis employing Danish quoted firms from 1998 to 2001. Despite Denmark's significant strides in liberalizing women's roles, the country's boardrooms still exhibit a predominantly male-dominated culture. He discovered that there was no significant correlation between firm performance, assessed through Tobin's Q, and the presence of women on the board. Farrell and Hersch (2005) discovered that the presence of an additional female director on the board does not have a significant impact on shareholder returns on the US market. Similarly, Carter *et al.* (2010) found no correlation between the diversity of gender and ethnicity on corporate boards and a firm's financial performance, using a dataset of the S&P 500 index. In spite of the varying results from international studies, this research expects to find a positive and statistically significant relationship between board gender diversity and firm value. The primary hypothesis that will be evaluated in this study is as follows: *H_1: A positive and statistically significant relationship exists between board gender diversity and firm value.*

5. Sample and Data

This study utilizes secondary data gathered from the annual reports of non-financial companies over a 10-year period, covering the years 2010 to 2020. This paper concentrates on non-financial firms because financial institutions necessitate separate analyses due to their unique regulatory environments, risk profiles and economic roles. These differences require specialized approaches that are not relevant to non-financial firms, enabling a more precise evaluation of their performance, risks and economic impact. The sample selection ended in 2020 since this is the period when listed corporations in Africa were not seriously affected by the COVID-19 pandemic. This approach to data collection has previously been used by many researchers (Ntim, 2015; Ofori-Boateng *et al.*, 2022). Data for seven sub-Saharan African countries, namely Kenya, Tanzania, Ghana, Nigeria, Mauritius, Botswana and South Africa, were extracted for 11 years, which generated 754 firm-year observations. A breakdown of the countries and numbers of firms involved are indicated in table 1. Table 1 shows the distribution of firms from sub-Saharan African countries by region. South Africa has the highest representation with 26 firms, followed by Kenya (15) and both Ghana and Nigeria (9 each). The regions with the fewest firms are Mauritius (8), Tanzania (3) and Botswana (1). East Africa and Southern Africa each account for approximately 37% of the total sample, while West Africa represents 25.86%.

Table 1: Sample distribution

S/N	Region	Countries	Firms	Observations	Percent (%)
1	West Africa (25.86%)	Ghana	9	99	13.13
		Nigeria	9	96	12.73
2	East Africa (37.14%)	Kenya	15	162	21.49
		Tanzania	3	33	4.38
		Mauritius	8	85	11.27
3	Southern Africa (37%)	Botswana	1	11	1.46
		South Africa	26	268	35.54
	Total		71	754	100

Source: Author's own calculation and elaboration

6. Study Period Justification

The COVID-19 pandemic has significantly affected listed companies in Africa, with impacts extending into 2021 and beyond. Key sectors such as tourism, hospitality and commodities faced prolonged disruptions due to ongoing restrictions and border closures, hindering recovery efforts. WB (2021) noted that sub-Saharan Africa is projected to experience slower economic growth compared to other regions, largely due to these persistent effects. Additionally, global supply chain disruptions and the emergence of new COVID-19 variants such as Delta and Omicron prompted renewed restrictions, further affecting sectors that were already struggling, such as airlines and hospitality.

The financial repercussions of the pandemic led to ongoing challenges for many corporations, including reduced revenues and cash flow issues due to decreased consumer demand. Businesses were forced to restructure and implement layoffs, resulting in lasting implications beyond 2020. Government responses varied in effectiveness, influencing operations and market behaviour. Recovery patterns were uneven, with technology and pharmaceuticals showing resilience while travel and hospitality continued to struggle, highlighting the profound impact of the pandemic on the African business landscape.

Studies have highlighted significant distractions caused by the COVID-19 pandemic for listed companies in Africa. For example, a study on Ghanaian firms revealed a negative impact on stock returns and increased market volatility (Ofori-Boateng *et al.*, 2022). To mitigate the confounding effects of the pandemic on the relationship between gender diversity on corporate boards and firm value, the present research focuses on the pre-pandemic period from 2010 to 2020. This approach clarifies the impact of gender diversity while underscoring how pandemic-related market conditions can influence corporate dynamics. Overall, the pandemic has fundamentally altered the operational and financial landscape for African listed companies, with lasting effects felt through 2021 and beyond.

7. Methodology

7.1 Variables

Proxies of firm value

To investigate the connection between board gender diversity and firm value, we employ Tobin's Q as an indicator of firm valuation (Ntim, 2015; Alharbi *et al.*, 2022). This metric is calculated as the ratio of market value to total assets. This is in line with many previous studies, including the recent study by Tuo *et al.* (2021). According to earlier corporate

governance research, Tobin's Q is regarded as a more dependable measure of a firm's value compared to conventional accounting metrics, as it better captures the long-term value of the firm (Agyemang-Mintah and Schadewitz, 2019).

Proxies for board gender diversity

This study utilizes three indicators of board gender diversity. Firstly, female directors (A) were defined as the total count of female members on the corporate board. Secondly, the presence of female directors (B) was defined as the ratio of the number of women on the board to the total number of board members, a commonly utilized metric in studies related to gender (Adams and Ferreira, 2009; Tuo *et al.*, 2021). Thirdly, female directors (C) were defined as "1" if there is female representation on the corporate board and "0" otherwise. This approach aligns with several prior studies, including those conducted by Gyapong *et al.* (2016), Agyemang-Mintah and Schadewitz (2019) and Alharbi *et al.* (2022).

Controls

In accordance with previous research, this study integrates a variety of control variables to mitigate the risk of omitted variable bias. Specifically, leverage is defined as the ratio of total debt to total assets, as companies with high levels of debt may improve their valuation by restricting opportunistic managers' access to free cash (Ntim, 2015; Tuo *et al.*, 2021). This relationship is expected to be positive, as high leverage can improve firm value. Additionally, firm size is quantified by taking the natural logarithm of total assets, as larger companies are more likely to be highly valued (Tuo *et al.*, 2021). Rationally, this association is anticipated to be positive, since larger firms typically have a higher valuation compared to smaller ones. Moreover, small firms may be able to secure external financing if they implement effective corporate governance mechanisms (Agyemang-Mintah and Schadewitz, 2019).

Other control variables encompass corporate governance mechanisms, including institutional ownership, board independence and the size of the board. Institutional ownership is considered important because institutional investors play a significant role in expressing their views and overseeing management's actions, resulting in enhanced firm value. Previous studies revealed that the tendency of shareholders activism largely undertaken by institutional investors is linked with increased company value (*e.g.,* Artiga González and Calluzzo, 2019). Institutional ownership refers to the percentage of shares held by institutional investors. Board independence is included due to the role of the board, which is crucial in enhancing shareholders' wealth. This variable is captured by determining the proportion of independent (non-executive) directors on the board. This definition has been adopted by many earlier researchers (*e.g.*, Alharbi *et al.*, 2022). As in many earlier studies, this pa-

per controls for board size. This variable is measured by calculating the natural logarithm of the total number of board members, consistent with previous research (*e.g.,* Alharbi *et al.*, 2022).

7.2 Empirical model

Consistent with the work of Agyemang-Mintah and Schadewitz (2019), this study employs the following regression model to evaluate the hypothesis regarding the effect of gender diversity on corporate boards on the value of the firm.

$$Tobin's\ Q_{it} = \beta_0 + \beta_1 Gender_{it} + \beta_2 Controls_{it} + \varepsilon_{it} \quad (1)$$

The model above specifies that *Tobin's* Q_{it}, a measure of firm value, is the dependent variable for the firm *i* at the time *t*. The constant term (β_0) represents the baseline value, while the independent variable *Gender* represents the existence of female board members. The control variables, which include leverage, firm size, institutional ownership, board independence and board size, are incorporated to address potential confounding factors and mitigate the risk of omitted variable bias. The error term (ε_{it}) captures any remaining variation in the data for the firm *i* at the time *t*.

Numerous previous studies on corporate governance research have typically employed fixed-effects and random-effects regressions to address potential endogeneity issues that may arise from unobserved time-invariant heterogeneity and simultaneity (*e.g.,* Nguyen *et al.*, 2015; Agyemang-Mintah and Schadewitz, 2019). Yet, these methods are not intended to deal with dynamic endogeneity, which is often evident in the influence of women directors on performance (*e.g.,* Adams and Ferreira, 2009) and is also found in the connection between board characteristics and firm performance (Nguyen *et al.*, 2015).

It is also noted that the use of instrumental variables approach in identifying external instruments is challenging (Flannery and Hankins, 2013). Based on this fact, it is unlikely to identify a broad range of external instruments for this study, as many explanatory variables are viewed as endogenously determined. Due to the scarcity of appropriate external instruments for research into corporate governance, Blundell and Bond (1998) propounded the two-step system GMM estimator as the utmost reasonable solution for handling endogeneity issues (Antoniou *et al.*, 2008). This approach allows the use of internal instruments available within the dataset to undertake empirical estimation (Blundell and Bond, 1998). Additionally, the system GMM estimator allows resolving the behaviour of slow-changing independent variables, which reveals that the fixed-effects estimator is weak (Antoniou *et al.*, 2008). One earlier research confirmed that the system GMM is the best-performing estima-

tor across common data features (Zhou *et al.*, 2014). Based on this information and the discussions articulated, this paper analyses the data collected using the pooled ordinary least squares (OLS) regressions and the system GMM estimator.

8. Empirical Results and Discussion

8.1 Descriptive statistics

Table 2: Descriptive statistics

Variables	Count	Mean	Std. dev.	Minimum	Maximum
Tobin's Q	661	15.07	46.21	0.13	193.75
Female directors (A)	754	1.55	1.34	0.00	7.00
Female directors (B)	754	16.29	13.37	0.00	66.67
Female directors (C)	754	0.76	0.43	0.00	1.00
Leverage	729	0.51	0.39	0.00	5.38
Firm size	729	21.44	2.91	13.93	28.33
Institutional ownership (%)	729	70.08	23.61	0.00	100
Board independence (%)	729	71.47	15.16	28.57	100.00
Board size	729	2.19	0.28	1.39	3.18

Source: Author's own calculations

Table 2 displays the descriptive statistics for the main variables associated with corporate governance and firm valuation, offering insights into the distribution and central tendencies within the dataset. Tobin's Q, as a measure of firm market value relative to asset replacement costs, shows a mean of 15.07 with substantial variability (std. dev. = 46.21), indicating a wide range of firm valuations from a minimum of 0.13 to a maximum of 193.75. The representation of female directors varies across categories, with female directors (A) averaging at 1.55 and female directors (B) at 16.29, while female directors (C) present a more limited mean of 0.76, suggesting differing levels of female presence in leadership roles.

The leverage ratio has a mean of 0.51, revealing moderate use of debt in financing, while firm size averages at 21.44, indicating relatively large firms given the scale. In terms

of governance quality, institutional ownership is notably high at 70.08% on average, likely reflecting a significant interest from institutional investors, while board independence stands at 71.47%, suggesting a trend towards greater accountability. The natural logarithm of board size is relatively small, averaging at 2.19. Collectively, these statistics illustrate the characteristics of firms in the sample, highlighting the importance of board gender diversity and corporate value.

8.2 Correlation matrix

Table 3 elucidates the pairwise correlations among various variables pertinent to board gender diversity and firm value, specifically measured by Tobin's Q. The observed correlations indicate a positive association between the presence of female directors (A), (B) and (C) and Tobin's Q, with correlation coefficients of 0.150***, 0.065* and 0.082**, respectively. These findings suggest that firms characterized by a higher proportion of female directors are likely to demonstrate elevated levels of firm value, as indicated by Tobin's Q. Additionally, a substantial correlation exists between the different classes of female directors, particularly between female directors (A) and (B) (0.658***) and between female directors (B) and (C) (0.692***), revealing a strong relationship among the different categories of female representation on boards.

Other significant correlations can be observed with respect to various control variables. Notably, firm size shows a negative correlation with Tobin's Q (−0.174***), suggesting that larger firms may not necessarily perform better in terms of market valuation. Furthermore, institutional ownership is positively correlated with female directors and demonstrates a complex relationship with financial leverage and board independence, illustrating the interplay between governance structures and ownership dynamics. Correlations among board dynamics, such as board independence and board size, also reveal important insights, with board size positively correlating with the different categories of female directors, indicating that firms with larger boards tend to have more female representation, as well as potentially better overall governance standards. These findings highlight the intricate relationships between board gender diversity, corporate value and other critical governance variables.

Table 3: Pairwise correlations

Variable	1	2	3	4	5	6	7	8	9
Tobin's Q – (1)	–	–	–	–	–	–	–	–	–
Female directors (A) – (2)	0.150***	–	–	–	–	–	–	–	–
Female directors (B) – (3)	0.065*	0.658***	–	–	–	–	–	–	–
Female directors (C) – (4)	0.082**	0.901***	0.692***	–	–	–	–	–	–
Leverage – (5)	0.05	0.063*	0.083**	0.066*	–	–	–	–	–
Firm size – (6)	–0.174***	0.132***	0.046	0.002	0.052	–	–	–	–
Institutional ownership (%) – (7)	0.091**	0.083**	0.027	0.065*	–0.090**	0.064*	–	–	–
Board independence (%) – (8)	0.04	0.120***	0.004	0.076**	0.066*	0.008	–0.044	–	–
Board size – (9)	0.148***	0.424***	0.241***	0.091**	0.060*	0.238***	0.02	0.066*	–

Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.
Source: Author's own calculations

8.3 Regression results

The primary findings of this study are presented in tables 4 and 5. Table 4 illustrates empirical results obtained from pooled ordinary least squares (OLS) and system generalized method of moments (GMM) estimations, which evaluate the influence of board gender diversity quantified by the number of female directors on firm value, as indicated by Tobin's Q. Across both modelling approaches, board gender diversity is demonstrated to exert a positive and statistically significant influence on firm value. For instance, the pooled OLS models indicate that a unit increase in the number of female directors is associated with an increase in Tobin's Q of approximately 28.48 in Model (1) and 26.27 in Model (2). The findings suggest that female directors enhance firm value by bringing diverse qualifications, experiences and perspectives that improve decision-making and foster innovation. Their presence on boards promotes inclusive discussions, reduces groupthink and addresses a broader range of stakeholder concerns, ultimately strengthening corporate governance. These findings align with existing literature indicating that gender diversity on corporate boards en-

hances decision-making and corporate value (*e.g.,* Nguyen *et al.*, 2015; Karavitis *et al.*, 2021; Alharbi *et al.*, 2022; Kyaw *et al.*, 2024). This correlation aligns with the principles of agency theory and resource dependence theory, as elaborated in Section 3 of the present study.

The control variables show complex findings, with significant positive coefficients for leverage across all the models, indicating that higher debt levels may provide operational advantages. This observation implies that firms with greater leverage can make effective use of financial opportunities within their investment strategies, consistent with the trade-off theory of capital structure (Nicodano and Regis, 2019). Conversely, firm size consistently demonstrates a negative impact on Tobin's Q across all the models, indicating that larger firms may underperform relative to their smaller, nimbler counterparts. This result potentially reflects inherent inefficiencies within larger organizations, which may hinder their ability to adapt rapidly to market fluctuations in contrast to their smaller, more focused competitors.

Additionally, the findings indicate that institutional ownership is significantly positively correlated with firm value in both the pooled OLS and system GMM models, underscoring the influential role that institutional investors play in shaping corporate performance (Shleifer and Vishny, 1986). Governance structures, particularly board size, are critical for firm value, as larger, more diverse boards are positively correlated with enhanced governance quality through a wider range of perspectives and expertise (Adams and Ferreira, 2009). The robustness of these results is further substantiated by the inclusion of control variables accounting for country and year effects, reinforcing the validity of our findings. These findings suggest that increasing female representation and optimizing board configurations can enhance firm performance by improving governance quality and diversity (Agyemang-Mintah and Schadewitz, 2019).

Table 4: Results of regression analysis using pooled OLS and system GMM with Tobin's Q as dependent variable and number of female directors as independent variable and other controls

	Pooled OLS			System GMM		
Variables	**Model (1)**	**Model (2)**	**Model (3)**	**Model (1)**	**Model (2)**	**Model (3)**
Constant	409.097*** (3.333)	368.042*** (3.100)	114.054* (1.822)	7.156*** (5.587)	9.843*** (8.451)	4.639*** (4.478)
Female directors (A)	28.482*** (2.634)	26.270** (2.581)	16.628* (1.957)	0.623*** (6.100)	0.636*** (5.916)	0.530*** (5.006)
Leverage	62.587** (2.098)	48.889* (1.905)	40.260* (1.702)	0.576** (2.430)	0.299* (1.890)	0.315** (1.970)
Firm size	–21.484*** (–3.346)	–19.578*** (–3.300)	–23.046*** (–3.440)	–0.415*** (–6.604)	–0.373*** (–6.993)	–0.498*** (–7.633)
Institutional ownership (%)	1.498*** (2.849)	–	–	0.042** (2.386)	–	–
Board independence	–	0.842* (1.857)	–	–	–0.002 (–0.194)	–
Board size	–	–	144.570*** (3.808)	–	–	3.316*** (7.397)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Count	637	653	654	637	653	654
R^2	0.521	0.504	0.521	–	–	–
***F*-statistic**	2.68	2.55	2.76	6.27	4.01	8.19
Number of instruments	–	–	–	5	5	5
Number of clusters	–	–	–	71	71	71
Hansen *J*-test of over-identification (*p*-value)	–	–	–	0.32	0.35	0.37

Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Source: Author's own calculations

Table 5: Results of regression analysis using pooled OLS and system GMM with Tobin's Q serving as dependent variable, proportion of female directors as independent variable, along with additional control variables

	Pooled OLS			System GMM		
Variables	**Model (1)**	**Model (2)**	**Model (3)**	**Model (1)**	**Model (2)**	**Model (3)**
Constant	356.353*** (3.335)	275.998*** (2.964)	51.807 (1.163)	7.305*** (6.219)	8.604*** (8.246)	3.900*** (3.451)
Female directors (B)	1.289* (1.929)	1.077* (1.801)	1.054* (1.816)	1.435*** (3.414)	1.206*** (3.664)	0.859** (2.178)
Leverage	68.388** (2.108)	53.762* (1.952)	40.505* (1.698)	0.624*** (2.987)	0.381*** (2.662)	0.329** (2.187)
Firm size	–19.504*** (–3.331)	–17.536*** (–3.301)	–22.727*** (–3.446)	–0.399*** (–6.201)	–0.364*** (–6.611)	–0.443*** (–6.553)
Institutional ownership (%)	1.528*** (2.807)	–	–	0.037*** (2.661)	–	–
Board independence	–	1.268** (2.273)	–	–	0.016 (1.407)	–
Board size	–	–	172.620*** (3.572)	–	–	3.354*** (7.757)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Count	637	653	654	638	653	654
R^2	0.106	0.091	0.118			
***F*-statistic**	2.94	2.82	2.73	4.19	8.56	4.29
Number of instruments	–	–	–	5	5	5
Number of clusters	–	–	–	71	71	71
Hansen *J*-test of over-identification (*p*-value)	–	–	–	0.31	0.36	0.38

Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Source: Author's own calculations

Table 5 highlights a significant positive correlation between the proportion of female directors and Tobin's Q, underscoring the importance of gender diversity in corporate governance. Both the pooled OLS and system GMM models show positive coefficients for female directors, with Model (1) of pooled OLS at 1.289 ($p < 0.10$) and system GMM at 1.435 ($p < 0.01$). These results suggest that higher female representation on boards is associated with increased firm value. The robustness of this relationship across model specifications, along with the significance of control variables such as leverage and institutional ownership, indicates that gender-diverse boards may enhance governance and financial performance.

9. Robustness Checks

To validate the original findings, we re-conducted the same set of pooled ordinary least squares (OLS) and system generalized method of moments (GMM) estimations using an alternative measure of board gender diversity, specifically the dummy variable for female directors (C). This methodological approach aligns with the frameworks established in earlier studies by Campbell and Mínguez-Vera (2008) and Nguyen *et al.* (2015). Presented in Table 6, the results serve as robustness checks for the earlier assertions regarding the impact of board gender diversity on firm value. Notably, the coefficients for female directors (C) remain significantly positive across five out of the six estimated models, indicating that an increased presence of female directors is positively associated with firm value. This reinforces prior evidence suggesting that gender diversity can enhance decision-making processes and corporate value (Campbell and Mínguez-Vera, 2008; Adams and Ferreira, 2009). The robustness of these findings, even when employing alternative proxies for gender diversity, is consistent with the principles of agency theory and resource dependence theory (Nguyen *et al.*, 2015).

Furthermore, the statistical significance of institutional ownership in Model (1) for both pooled OLS and system GMM estimates underscores the influential role of institutional investors in enhancing governance efficacy. Simultaneously, the negative coefficients associated with firm size across all the models illustrate a persistent trend in which larger firms may face diminishing returns, potentially reflecting operational inefficiencies. The system GMM models further corroborate these relationships, particularly with regard to leverage and the positive effect of board size on corporate value in Model (3), suggesting that larger boards may enhance oversight and strategic direction (Linck *et al.*, 2008). The stability of these findings across diverse estimation techniques, coupled with the robustness of Hansen *J*-tests for over-identification, bolsters confidence in the validity of the initial analyses and highlights the significance of board gender diversity, governance structures and institutional ownership in influencing corporate value.

Table 6: Results of regression analysis using pooled OLS and system GMM with Tobin's Q as dependent variable and dummy of female directors' representation on board as independent variable and other controls

	Pooled OLS			System GMM		
Variables	**Model (1)**	**Model (2)**	**Model (3)**	**Model (1)**	**Model (2)**	**Model (3)**
Constant	261.248*** (3.443)	281.351*** (3.486)	59.030 (1.445)	7.327*** (6.432)	8.874*** (9.264)	2.074* (1.744)
Female directors (C)	35.936*** (2.762)	35.948*** (2.805)	10.704 (1.303)	0.024*** (3.006)	0.016*** (2.829)	0.044*** (3.992)
Leverage	40.450* (1.817)	30.296 (1.621)	28.596 (1.501)	0.585*** (2.829)	0.405*** (2.918)	0.290* (1.856)
Firm size	–15.806*** (–3.241)	–14.896*** (–3.218)	–18.162*** (–3.361)	–0.371*** (–6.210)	–0.342*** (–6.878)	–0.462*** (–7.233)
Institutional ownership (%)	1.061*** (2.591)	–	–	0.037*** (2.661)	–	–
Board independence	–	0.516 (1.361)	–	–	0.016 (1.418)	–
Board size	–	–	158.858*** (3.567)	–	–	4.240*** (7.423)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Count	638	653	654	637	653	654
R^2	0.451	0.539	0.569			
***F*-statistic**	2.74	2.82	3.37	4.19	8.56	1.29
Number of instruments	–	–	–	5	5	5
Number of clusters	–	–	–	71	71	71
Hansen *J*-test of over-identification (*p*-value)	–	–	–	0.33	0.36	0.38

Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Source: Author's own calculations

10. Conclusions and Areas of Future Research

This study provides significant evidence that board gender diversity positively affects firm value, as reflected by Tobin's Q, based on both pooled ordinary least squares (OLS) and system generalized method of moments (GMM) estimations. The analysis shows that an increase in the number of female directors correlates with significant improvements in firm value, consistent with the findings of Campbell and Mínguez-Vera (2008) and Genderle *et al.* (2017). This support for gender diversity aligns with the theoretical frameworks of agency theory and resource dependence theory, suggesting that diverse boards can enhance decision-making and better respond to stakeholder demands, thus fostering superior corporate performance.

Furthermore, our examination of control variables reveals intricate relationships between governance structures and firm value. Notably, while leverage demonstrates a positive association with firm value, consistent with the trade-off theory of capital structure (Nicodano and Regis, 2019), larger firm sizes exhibit negative impacts potentially reflective of operational inefficiencies. The positive correlation between board size and company value emphasizes the importance of larger, diverse boards in enhancing governance quality, reinforcing the need for organizations to consider board composition as a strategic governance factor (Adams and Ferreira, 2009). The findings also underscore the pivotal role of institutional ownership in promoting firm value, demonstrating how strategic investor engagement can influence corporate governance practices (Shleifer and Vishny, 1986). Robust model specifications and consistent results across them underscore the importance of gender diversity for firms looking to gain a competitive edge in today's dynamic economy.

Despite the compelling results of this study, several avenues for future research could deepen our understanding of the dynamics of board diversity. Firstly, longitudinal studies could clarify the causal links between female board members and firm valuation, helping researchers distinguish between short-term successes and long-term outcomes while assessing the impact of diversity strategies over time. Additionally, qualitative research that investigates decision-making processes within diverse boards would reveal the mechanisms through which gender diversity influences corporate governance. Understanding how female directors contribute unique perspectives and challenge conventional approaches could substantiate the theoretical constructs linking diversity to improved performance and inform practical insights for board dynamics.

Future research could also explore industry-specific variations in the relationship between board gender diversity and firm value. Different sectors may possess unique cultural,

regulatory and operational characteristics that influence the effectiveness of diverse boards. For instance, industries that face rapid innovation cycles may benefit more from diverse perspectives compared to traditional sectors. Therefore, comparative analyses across industries could identify best practices and contextual factors that optimize the impact of gender diversity.

Lastly, expanding the scope to examine the interplay between gender diversity and other forms of diversity, such as ethnicity and professional background, could provide a more holistic view of how varied board compositions contribute to overall firm success. By understanding the synergies between different kinds of diversity, organizations can better tailor their diversity initiatives, thereby enhancing their governance frameworks and ultimately their competitive advantage in the marketplace.

Acknowledgement

Funding: There was no funding, either externally or internally, towards this study.

Conflicts of interest: The author hereby declares that this article was neither submitted nor published elsewhere.

AI usage statement: The authors confirm that no artificial intelligence (AI) or AI-assisted tools were used in the creation of this manuscript.

References

Adams, R. B., Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94(2), 291–309. https://doi.org/10.1016/j.jfineco.2008.10.007

Agyemang-Mintah, P., Schadewitz, H. (2019). Gender diversity and firm value: evidence from UK financial institutions. *International Journal of Accounting & Information Management*, 27(1), 2–26. https://doi.org/10.1108/ijaim-06-2017-0073

Alharbi, R., Elnahass, M., McLaren, J. (2022). Women directors and market valuation: What are the "Wonder Woman" attributes in banking? *Journal of International Financial Markets, Institutions and Money*, 80, 101611. https://doi.org/10.1016/j.intfin.2022.101611

Antoniou, A., Guney, Y., Paudyal, K. (2008). The determinants of capital structure: capital market-oriented versus bank-oriented institutions. *Journal of Financial and Quantitative Analysis*, 43(1), 59–92. https://doi.org/10.1017/s0022109000002751

Artiga González, T., Calluzzo, P. (2019). Clustered shareholder activism. *Corporate Governance: An International Review*, 27(3), 210–225. https://doi.org/10.1111/corg.12271

Berles, A., Means, G. C. (1932). *The Modern Corporation and Private Property*. New York: Macmillan.

Blundell, R., Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115–143. https://doi.org/10.1016/s0304-4076(98)00009-8

Campbell, K., Mínguez-Vera, A. (2008). Gender diversity in the boardroom and firm financial performance. *Journal of Business Ethics*, 83(3), 435–451. https://doi.org/10.1007/s10551-007-9630-y

Carter, D. A., D'Souza, F., Simkins, B. J., et al. (2010). The gender and ethnic diversity of US boards and board committees and firm financial performance. *Corporate Governance: An International Review*, 18(5), 396–414. https://doi.org/10.1111/j.1467-8683.2010.00809.x

Carter, D. A., Simkins, B. J., Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *Financial Review*, 38(1), 33–53. https://doi.org/10.21070/ups.858

Darmadi, S. (2011). Board diversity and firm performance: The Indonesian evidence. *Corporate Ownership and Control Journal*, 8(2–4), 450–466. https://doi.org/10.22495/cocv8i2c4p4

Erhardt, N. L., Werbel, J. D., Shrader, C. B. (2003). Board of director diversity and firm financial performance. *Corporate Governance: An International Review*, 11(2), 102–111. https://doi.org/10.1111/1467-8683.00011

Faff, R., Hallahan, T., McKenzie, M. (2011). Women and risk tolerance in an aging world. *International Journal of Accounting & Information Management*, 19(2), 100–117. https://doi.org/10.1108/18347641111136427

Farrell, K. A., Hersch, P. L. (2005). Additions to corporate boards: The effect of gender. *Journal of Corporate Finance*, 11(1–2), 85–106. https://doi.org/10.1016/j.jcorpfin.2003.12.001

Finegold, D., Benson, G. S., Hecht, D. (2007). Corporate boards and company performance: Review of research in light of recent reforms. *Corporate Governance: An International Review*, 15(5), 865–878. https://doi.org/10.1111/j.1467-8683.2007.00602.x

Flannery, M. J., Hankins, K. W. (2013). Estimating dynamic panel models in corporate finance. *Journal of Corporate Finance*, 19, 1–19. https://doi.org/10.1016/j.jcorpfin.2012.09.004

Francoeur, C., Labelle, R., Sinclair-Desgagné, B. (2008). Gender diversity in corporate governance and top management. *Journal of Business Ethics*, 81, 83–95. https://doi.org/10.1007/s10551-007-9482-5

Galbreath, J. (2016). When do board and management resources complement each other? A study of effects on corporate social responsibility. *Journal of Business Ethics*, 136, 281–292. https://doi.org/10.1007/s10551-014-2519-7

Gyapong, E., Monem, R. M., Hu, F. (2016). Do women and ethnic minority directors influence firm value? Evidence from post-apartheid South Africa. *Journal of Business Finance & Accounting*, 43(3–4), 370–413. https://doi.org/10.1111/jbfa.12175

Hill, C. W. L., Jones, T. M. (1992). Stakeholder-agency theory. *Journal of Management Studies*, 29(2), 131–154. https://doi.org/10.1111/j.1467-6486.1992.tb00657.x

Hillman, A. J., Cannella Jr, A. A., Harris, I. C. (2002). Women and racial minorities in the boardroom: How do directors differ? *Journal of Management*, 28(6), 747–763. https://doi.org/10.1016/s0149-2063(02)00192-7

International Finance Corporation (2017). *Investing in Women: New Evidence for the Business Case*. Washington, D.C.: International Finance Corporation. https://doi.org/10.1596/28973

Jenson, M., Meckling, W. (1976). Theory of the firm: managerial behaviour agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. https://doi.org/10.1016/0304-405x(76)90026-x

Karavitis, P., Kokas, S., Tsoukas, S. (2021). Gender board diversity and the cost of bank loans. *Journal of Corporate Finance*, 71, 101804. https://doi.org/10.1016/j.jcorpfin.2020.101804

Kyaw, K., Khatri, I., Treepongkaruna, S. (2024). When R&D investment improves firm value: the role of board gender diversity. *Corporate Governance: The International Journal of Business in Society*, 25(3), 471–495. https://doi.org/10.1108/cg-09-2023-0410

Linck, J. S., Netter, J. M., Yang, T. (2008). The determinants of board structure. *Journal of Financial Economics*, 87(2), 308–328. https://doi.org/10.1016/j.jfineco.2007.03.004

Nguyen, T., Locke, S., Reddy, K. (2015). Does boardroom gender diversity matter? Evidence from a transitional economy. *International Review of Economics & Finance*, 37, 184–202. https://doi.org/10.1016/j.iref.2014.11.022

Nicodano, G., Regis, L. (2019). A trade-off theory of ownership and capital structure. *Journal of Financial Economics*, 131(3), 715–735. https://doi.org/10.1016/j.jfineco.2018.09.001

Ntim, C. G. (2015). Board diversity and organizational valuation: Unravelling the effects of ethnicity and gender. *Journal of Management & Governance*, 19(1), 167–195. https://doi.org/10.1007/s10997-013-9283-4

Ofori-Boateng, K., Ohemeng, W., Agyapong, E. K., et al. (2022). The impact of COVID-19 on stock returns of listed firms on the stock market: Ghana's experience. *African Journal of Economic and Management Studies*, 13(1), 136–146. https://doi.org/10.1108/ajems-02-2021-0074

Perryman, A. A., Fernando, G. D., Tripathy, A. (2016). Do gender differences persist? An examination of gender diversity on firm performance, risk, and executive compensation. *Journal of Business Research*, 69(2), 579–586. https://doi.org/10.1016/j.jbusres.2015.05.013

Pfeffer, J., Salancik, G. R. (1978). *The External Control of Organizations: A Resource Dependence Perspective.* New York: Harper and Row.

Rose, C. (2007). Does female board representation influence firm performance? The Danish evidence. *Corporate Governance: An International Review*, 15(2), 404–413. https://doi.org/10.1111/j.1467-8683.2007.00570.x

Shleifer, A., Vishny, R. W. (1986). Large shareholders and corporate control. *Journal of Political Economy*, 94(3), 461–488. https://doi.org/10.1086/261385

Shrader, C. B., Blackburn, V. B., Iles, P. (1997). Women in management and firm financial performance: An exploratory study. *Journal of Managerial Issues*, 9(3), 355–372. https://www.jstor.org/stable/40604152

Terjesen, S., Couto, E. B., Francisco, P. M. (2016). Does the presence of independent and female directors impact firm performance? A multi-country study of board diversity. *Journal of Management & Governance*, 20, 447–483. https://doi.org/10.1007/s10997-014-9307-8

Terjesen, S., Sealy, R., Singh, V. (2009). Women directors on corporate boards: A review and research agenda. *Corporate Governance: An International Review*, 17(3), 320–337. https://doi.org/10.1111/j.1467-8683.2009.00742.x

Tuo, S. J., Chang, L., Tesfagebreal, M., et al. (2021). Gender diversity inclusive board structure and firm performance: Evidence from West Africa. *Journal of Corporate Accounting & Finance*, 32(4), 118–131. https://doi.org/10.1002/jcaf.22519

Zhou, Q., Faff, R., Alpert, K. (2014). Bias correction in the estimation of dynamic panel models in corporate finance. *Journal of Corporate Finance*, 25, 494–513. https://doi.org/10.1016/j.jcorpfin.2014.01.009