THE ROLE OF WOMEN ON BOARD OF DIRECTORS AND FIRM PERFORMANCE: EVIDENCE FROM SAUDI ARABIA FINANCIAL MARKET

Ebrahim Mohammed Al-Matari *, Mushari Hamdan Alosaimi **

* *Corresponding author*, Department of Accounting, College of Business, Jouf University, Sakakah, Saudi Arabia
Contact details: Department of Accounting, College of Business, Jouf University, Sakakah 72388, Saudi Arabia
** Department of Accounting, College of Business Administration, Umm Al-Qura University, Makkah, Saudi Arabia

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Abstract

The major purpose of this article is to investigate how women on boards of directors influence firm performance in Saudi Arabia firms. The major approach utilized to assess the influence of female board members and top management positions on business performance was multivariate regression analysis. The research employed an alternate proxy assessment for women on the boards of directors and in top management. Women on boards of directors and in top management had a modestly favourable link with company success, according to the data. The study employed alternative proxy metrics for women on the board of directors and in upper management. The study contributes to the corpus of information on the influence of women on business boards of directors and in top management. The study's shortcomings include its small sample of publicly traded Saudi firms and its concentration on the problem of women on boards of directors and in top management in Saudi Arabia, as well as their impact on firm performance. Finally, this study is the first to examine the link between the success of a corporation and the presence of women in senior management positions and on corporate boards.

Keywords: Women on the Board, Saudi Financial Sector, Saudi Arabia

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1. INTRODUCTION

Women form part of the top issues that have been in focus around the globe, owing to their societal status and role, and as they constitute half of the society, societal goals and aspirations will not be achieved without their development (Leyva-Townsend, Rodriguez, Idrovo, & Pulga, 2021; Onyekwere & Babangida, 2022). Additionally, women's participation in the economy is one of the top and urgent topics discussed in the political and economic circles in both country types (developed and developing) (Adams, 2016; Hamdan, Nasrallah, El Khoury, Hamdan, & Alareeni, 2022;

Hernández-Nicolás, Martín-Ugedo, & Minguez-Vera, 2022; Soare, Detilleux, & Deschacht, 2022). This issue has gained focus on the global platform following the declaration of the UN General Assembly of equality and justice between genders being one of the sustainable development objectives to be realized by 2030. Parallel to this, laws and policies support the empowerment of women towards equal rights and opportunities as those of their male counterparts (Seyadi & Elali, 2021; Hamdan et al., 2022; Marinova, Plantenga, & Remery, 2016).

On the basis of the social and economic aspects, women's integration into the labor force and their taking part in top management reflects a step towards achieving justice and fairness, particularly when the system of recruitment is linked to the competence and capabilities of the workers (Adams, 2016). In other words, a diversified gender-based board of directors enhances governance, rational plans, and optimum decision-making process (Seyadi & Elali, 2021). In the context of Saudi Arabia, the Kingdom has concrete plans to increase the participation of women in the labor market from 22% to 30% by 2030 as gender equality and mitigation of foreign workers on the market are underway (Hamdan et al., 2022). According to Marinova et al. (2016), there are several theoretical underpinnings that evidenced the case of board gender diversity with the first one being that women have a higher likelihood to understand particular conditions in the market compared to men, which could lead to enhanced and informed decisions. The capacity of a gender-diverse board to cultivate a stronger public image and the likelihood that the external talent pool for board members will evolve towards the recruitment of women to certain executive roles serve as additional pillars. Additionally, it has been shown that the percentage of female top executives may benefit women's career advancement in lower positions, therefore both directly and indirectly increasing the productivity of the company. However, the truth reveals that there is still a shortage of female representation at the highest levels of businesses due to discrimination, gender-specific preferences, inequalities in human capital, and the impacts of time lag (Blau & Kahn, 2017; Carter, Simkins, & Simpson, 2003; Conyon & He, 2017; Deschacht, De Pauw, & Baert, 2017). Business leadership and company boards have had notable increases in women proportion but the effects of such phenomenon on firm performance are still under-examined (Al-Matari & Mgammal, 2019; Ferrari et al., 2018).

Past literature on board gender diversity has mainly addressed the situation in developed nations (Carter et al., 2003; Carter, D'Souza, Simkins, & Simpson, 2010; Hernández-Nicolás et al., 2022; Leyva-Townsend et al., 2021; Mihail, Dumitrescu, Micu, & Lobda, 2022). To compound the matter further, there is a lack of evidence on the way gender composition of the board influences the financial performance of the firm in emerging economies (Chandani, Mabood, & Mahmood, 2018; Onyekwere & Babangida, 2022; Tahir, Ullah, Ahmad, Syed, & Qadir, 2021; Thrikawala, Locke, & Reddy, 2016), particularly the countries in the GCC (Hamdan et al., 2022; Issa, Zaid, & Hanaysha, 2021; Jizi, Nehme, & Melhem, 2022). This holds true for Saudi Arabia. Tables A.1 and A.2 (see Appendix) list prior studies on Saudi Arabia and it is evident from the list that a study has yet to examine the role of women on the board and its effect on firm performance.

Table A.3 (Appendix) lists the number of international researches that looked at how having more women on boards of directors affected how well firms performed. data was gathered from the Scopus database between 1982 and 2022. The years from 1982 to 2022 under consideration showed a rise in research, which highlights the significance of having women on the council due to the benefits discovered in earlier studies. Women often have a history of being punctual and taking their jobs seriously (Carter et al., 2003; Mihail et al., 2022; Ullah, Fang, & Jebran, 2019).

Despite an upsurge in research conducted throughout the world, the GCC nations have provided very few studies (Table A.1). Statistics also demonstrated the presence of women on the board in the Saudi context (Table A.2), but more research is needed to determine how this presence of women affects the financial performance of businesses. Due to the fact that women on the board of directors have consistently shown their ability to execute tasks and their serious commercial acumen (Conyon & He, 2017; Soare et al., 2022). In order to remove impediments to the growth of the labor market in light of all societal segments, the Saudi Arabia Vision 2030 addresses the sixth dimension that enables the societal segments to join the labor market and contribute to its attractiveness. This was intended to be fostered through normalizing women's involvement in the job market and giving them the skills and resources, they need to thrive in the workplace. The role of women in publicly traded Saudi financial firms is investigated in this research.

More specifically, the study is focused on the women's presence in the board of Saudi firms. Notably, the proportion of women's participation in the labor market in the Middle East is 25% in comparison to 50% on a global level (Rahim, 2021). Several rules have been enacted in Saudi Arabia for women empowerment and the promotion of their roles, supporting their active participation in the political and business activities as articulated in the 2030 Vision. The Kingdom has plans to enhance the participation of women in the labor market from 22% to 30% by 2030, in an attempt toward gender equality implementation and reduction of foreign workers in the national labor market — this has been facilitated through the establishment of new work channels, particularly in small firms and investing in social networks. The vision is underpinned by the sixth dimension involving the enabling of societal segments to enter the labor market to enhance their performance and attractiveness while overcoming development barriers relating to all societal segments. This can also be realized through the promotion of women's participation culture in the labor market and furnishing them with the methods and tools to be effective and efficient in their work environment (Al-Matari & Mgammal, 2019).

The current research contributes to the literature in a number of ways. To start, it offers data from Saudi Arabia, a nation that has not received as much attention as it should when examining the impact of women's representation on corporate boards of directors and in top management positions. In this respect, earlier research tended to concentrate on the phenomena alone. The research also adds to the body of knowledge on the status and function of women in senior management and on boards, as well as their impact on the ROE-measured performance of the company. A further contribution is the creation of a framework of empirical data on the impact of women on a company's financial success, which will support or contradict theoretical claims from various settings and sectors. The research also employs alternate measuring methods that could strengthen the data found in the literature. Parallel empirical research in Ghana examined the connection between the presence of women in top management and corporate success by Nyeadi, Kamasa, and Kpinpuo (2021) and the authors suggested future studies to use financial performance measurement (e.g., ROA, ROE, and Tobin's Q). As a result, the accounting-based performance measurements provided a short term that could help the firm to make the right decision for investments (Al-Matari & Al-Arussi, 2016).

The remainder of this paper is structured as follows. The study of the underlying theory and relevant research in Section 2 discusses how the presence of women in top management positions and on boards affects companies' financial performance and verifies or refutes previously developed theories. The theoretical framework and methods for the research are described in Section 3. The empirical results are shown in Section 4. Section 5 discusses the results. Conclusion, consequences, recommendations, and the study's limits are presented in Section 6.

2. LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESIS

2.1. Underpinning theory

The agency theory (Jensen & Meckling, 1976), the resource dependence theory (Ashforth & Mael, 1989), the social identity theory, the social categorization theory (Tajfel, 1981), and the upper echelons theory (Hambrick & Mason, 1984; Hambrick, 2007) have all been proposed in the literature to shed light on the relationship between female board participation and firm financial performance. Although this research picked the resource dependency theory and the agency theory as its guiding theories to examine female directors and managers and performance, the link between board gender diversity and business performance cannot be described by a single underlying theory. Starting with the agency theory, a range of internal and external processes may be used to support corporate governance (Roberts, Dutton, Spreitzer, Heaphy, & Quinn, 2005). These methods are intended to safeguard the interests of the shareholders, guarantee that the agent's objectives are congruent with those of the principal, and lower the cost of agency (Davis, Schoorman, & Donaldson, 1997). Demsetz and Lehn (1985) stated that the primary goal of corporate governance (CG) is to address agency issues through the monitoring of management behavior and the financial reporting process rather than to improve corporate performance directly (Al-Matari, 2020).

As a result, CG mechanisms are useful for reducing agency costs, protecting shareholders' interests by overseeing management's activities, and ensuring that management and shareholders' interests are aligned. The board of directors is the primary internal governance mechanism in this case, and it is responsible for overseeing executive decisions (Al-Manaseer, Al-Hindawi, Al-Dahiyat, & Sartawi, 2012; Al-Matari, Al-Ahdal, Farhan, Senan, & Tabash, 2020). The board is also at the heart of the CG mechanisms, and it is widely regarded as the most effective way for shareholders to monitor and control top management (Al-Matari, Al Swidi, & Fadzil, 2014; John & Senbet, 1998). According to relevant studies (Jensen, 1993; Lipton & Lorsch, 1992), the ideal number of board members is seven to eight, while Firstenberg and Malkiel (1994) found that the board of directors should be eight or less for optimal participation, accurate interaction and discussions, and higher focus levels. Diversity is a measure of independence and a fair and just decision-making basis, according to the agency theory (Goodstein, Gautam, & Boeker, 1994; Jensen & Meckling, 1976). Female participation in corporate boards is associated with a lower level of fraudulent activities, according to literature, but the extent to which their participation is increased will contribute to effective CG, which is the main goal of CG.

Moving on to the resource dependence theory, it assumes that board members are selected to enhance the firm resources supply (Hillman & Dalziel, 2003; Klein, 1998; Pfeffer, 1972; Salancik & Pfeffer, 1980). The theory views the board of directors as those gathering the resources from the environmental boundaries (Pfeffer, 1972). In other words, boards form an effective connection and a useful firm mechanism to obtain the required resources from the environment (Al-Matari, Al-Matari, & Saif, 2017). Pfeffer's (1972) pioneering research indicated that the board size and the members' background are important to managing the requirements of the organization for capital and regulatory environment and that the board functions as a boundary spanner to enhance the prospective opportunities of the business of the firm. Based on the resource dependence theory, the board primarily functions to obtain needed resources on the basis of the board members-other organizations' relationships (Pfeffer, 1972; Provan, 1980). Resource acquisition allows the members of the board to decrease the level of uncertainty in the environment of the firm (Pfeffer, 1972; Thompson, 1967). The board's main responsibility is to maintain the legitimacy of the firm and create opportunities to meet the expectations of business and align the interests of the firm with those of other firms (Dooley, 1969; Pennings, 1980). Based on the aforementioned justification, the agency theory and the resource dependency theory adequately capture the contribution of board diversity to improving the performance of the company.

2.2. The role of women on the board of directors and firm performance

Data on the connection between women's representation on the board of directors and the firm's performance are still lacking since there are conflicting empirical results about the link between gender diversity and the financial success of the firms (Adams, 2016; Conyon & He, 2017; Hernández-Nicolás et al., 2022; Soare et al., 2022). When it comes to women in business, they are more able to gather information on a timely and easy basis and are flexible when dealing with both genders (Dezsö & Ross, 2012). They are better able to understand customers, partners, and employees of both genders due to the diverse female exposure to men and women interactions through family members and their nurturing and upbringing roles of children. As a result, they are in an ideal position to easily and quickly gather information from people in order to make informed decisions. In addition to having a better knowledge of consumers, women are also better equipped to serve clients effectively and efficiently. They operate with a more democratic and participative leadership style, making it possible to gather discerning perspectives and feedback. Women are more naturally more creative thinkers and incubators of new ideas (Huse, 2008; Isidro & Sobral, 2015).

Based on the above empirical studies, a strong positive relationship exists between gender and ethnic diversity and the companies' financial performance, with the authors noting that board diversity enhances the independence of the board, making it a positive driver of board monitoring capacity and effectiveness (Mihail et al., 2022). Contrastingly, Hambrick and Mason (1984) supported a negative firm performance–women's participation relationship. Generally, empirical findings on board gender diversity-financial performance relationship are mixed, and despite the increasing research in the area, most of the studies were conducted in developed nations, with many arguing a significant positive association between women's role on the board and the performance of the firm (Carter et al., 2003; Conyon & He, 2017; Flabbi, Piras, & Abrahams, 2017; Mihail et al., 2022; Reguera-Alvarado, de Fuentes, & Laffarga, 2017; Taljaard, Ward, & Muller, 2015; Ullah et al., 2019). Some of them indicated that women's role has a negative relationship with the performance of firms (Adams & Ferreira, 2009; Hernández-Nicolás et al., 2022; Soare et al., 2022). Meanwhile, some others revealed that women on the board had no effect on the companies' performance (Carter et al., 2010; Chandani et al., 2018; Marinova et al., 2016; Rose, 2007). In particular, studies from different countries supported no significant result (Carter et al., 2010; Chandani et al., 2018; Marinova et al., 2016; Martinez-Jimenez, Hernández-Ortiz, & Fernández, 2020; Pletzer, Nikolova, Kedzior, & Voelpel, 2015; Rose, 2007). The above evidence from literature and the underpinning theories generally support the relationship between the women's role on the board and firm performance and thus, this study proposes the following hypothesis:

H1: The role of women on the board has a positive influence on the performance of Saudi financial firms.

2.3. The role of women in top management and the firm performance

In this subsection of the study, the role of women in top management is presented and discussed. Top management team members form the primary core of every organization in a way that top management team enhancement has a direct relationship with enhanced performance of the firm (Dezsö & Ross, 2012). The entire major organizational decisions are taken at the top management level and thus, its effectiveness, efficiency, and productivity need to be optimum for smooth functioning. Firms are generally represented by their top-level management all over the world, where notably, only a few or no females are included (Dezsö & Ross, 2012) and to have proper representation of females at this level calls for a diversified organization. It is interesting to note that a gender-diversified firm reflects better performance owing to the informational advantages and social diversity, improved social corporate image, and gender differences among the top management echelons (Smith, Smith, & Verner, 2006). According to Tahir et al. (2021), females have a key role to play at the top management level and further evidence shows that female top managers may have a positive effect on the career development of lower-level women and thus, enhancing the organizational productivity in a direct and indirect manner (Onyekwere & Babangida, 2022).

Moreover, female top executives from a specific phenomenon are linked to national determinants on distinct economic, political, social, and cultural scales that go way over the level of the company. According to Grosvold and Brammer (2011), the presence of a female board of directors is directed to the country's culture and economy and the representation of females in top management contributes to benefits of decision-making quality because females tend to adopt inclusive leadership, they are more cooperative and they welcome all views prior to the final decision compared to men (Dezsö & Ross, 2012) and they are also comfortable sharing power compared to their male counterparts (Huse, 2008). Regardless of the positive results of female inclusion in top management, based on empirical findings, the relationship between female top managers and firm performance is still inconclusive. Several studies have reached the conclusion that female top managers lead to higher performance in firms (Moreno-Gómez, Lafuente, & Vaillant, 2018; Nyeadi et al., 2021), while some others obtained a negative relationship between the two (e.g., Darmadi, 2013). Contrasting findings were also reported by some other studies with no significant influence of female top managers and the performance of firms (D'Amato, 2017; Kyaw, Olugbode, & Petracci, 2017; Marinova et al., 2016; Ming & Hock-Eam, 2016). Based on the above discussion of past literature and the assumptions of the underpinning theories, the following hypothesis is proposed for examination in this research:

H2: In Saudi Arabia, the presence of women in top management has a positive impact on financial firm performance.

2.4. Control variables

The control variables in this study are as follows:

- *Firm size:* this is calculated following relevant studies in literature including Mihail et al. (2022), Nyeadi et al. (2021), Onyekwere and Babangida (2022), and Tahir et al. (2021), through the firm's log of total assets.
- *Firm age:* this is calculated according to the studies of Nyeadi et al. (2021), Onyekwere and Babangida (2022), and Tahir et al. (2021), using the number of years since the inception of the company.
- *Leverage:* the measurement of leverage is adopted from Hamdan et al. (2022), Hernández-Nicolás et al. (2022), and Leyva-Townsend et al. (2021), using the total debts over total assets formula.

3. RESEARCH METHODOLOGY

3.1. Sample and data collection

The study's data set included 45 of 47 publicly traded financial institutions (banks and insurance companies) from annual reports for the years from 2014 to 2020. Due to missing data, the remaining two financial firms were eliminated. Data on corporate governance were collected from annual reports and the data on firm performance was collected from DataStream. Due to its importance to the Kingdom of Saudi Arabia's economic growth, this study concentrates on the banking industry. Because of their structure, operating procedures, and accounting standards, which are quite different from those of financial organizations, it excludes non-financial firms (Schiehll & Bellavance, 2009). Moreover, the financial sector is the economy's backbone, and any disruption in this vital sector will paralyze the entire economy, as the global financial crisis of 2008 demonstrated. The Kingdom of Saudi Arabia's vision focused on this sector because of its importance in the economic developments that contribute to development. Saudi Vision 2030 aims to establish a diverse, effective financial sector that can support economic development, boost savings, financing, and investment, and increase the sector's efficiency to meet its difficulties.

3.2. Variable measurements

Table 1 contains all of the measurements we presented for the variables in this section.

Table 1. The measurements of variables with the abbreviation

Variable	*Abbreviation*	*How to measure the variable*
Return on equity	*ROE*	Net profits on equity of the shareholder.
Women on the board of directors	*FBODS*	Women's representation on the board of directors.
Women in top management	*FTM*	The number of women in top management.
Firm size	*FSNUM*	Total assets.
Firm size log	*FSLOG*	Total company assets logged.
Bank sector	*BakSTOR*	Dummy variable "1" if the firm is a bank and by "0" otherwise.
Leverage	*LVG*	Total debts over total assets.
Age	*AGE*	The duration of time since the company's founding.
Ratio of women on the board of directors	*FBODS_ratio*	It represents the number of women on the board members of the board of directors (%).
Ratio of women in the top management	*FTM_ratio*	It represents the number of women in top management on top management (%).
Year	*Year*	It is represented by a dummy variable.

3.3. Model specification

On the basis of the procedures of hypotheses development, the equations are estimated as follows:

$$ROE_{it} = \alpha_0 + \beta_1 FBODS_{it} + \beta_2 FTM_{it} + \beta_3 FSLOG_{it} + \beta_4 BakSTOR_{it} + \beta_5 LVG_{it} + \beta_6 AGE_{it} + \varepsilon_{it} \quad (1)$$

4. EMPIRICAL RESULTS

4.1. Descriptive statistics

In Table 2, the results of the descriptive statistics are tabulated and, in particular, the dependent variable (*ROE*) value in the table was 0.234%. The table also contains the values of mean, standard deviation, median, and range of the control variables.

Table 2. Descriptive statistics

Variable	*Mean*	*Std. Dev.*	*Min.*	*Max.*
ROE	0.234	0.194	-0.778	1.914
FBODS	0.283	0.565	0.000	2.000
FTM	0.414	0.733	0.000	4.000
FSNUM	4.24E + 07	9.26E + 07	123054.4	5.99E + 08
FSLOG	6.564	0.955	5.090	8.778
BakSTOR	0.289	0.454	0.000	1.000
LVG	0.692	0.152	0.090	0.959
AGE	20.422	19.643	0.000	94.000

Note: See Table 1 for the abbreviation of variables.

4.2. Bivariate analysis

The research variables' correlation was examined to determine their connection or lack thereof to *ROE* (refer to Table 3) and the presence/absence of the multicollinearity issue was also tested. In this regard, Hair, Black, Babin, and Anderson (2010) established the benchmark of 0.8 or lower to indicate the absence of multicollinearity. No issue was found in the study as the associations among the variables were less than 0.80. Significant correlations were found between *ROE* and *FTM, ROE* and *LVG,* and finally, *ROE* and *AGE*. The author calculated the VIFs to estimate the regression models' explanatory variables' multicollinearity. The VIF values remained below 5, indicating no cause for concern (refer to Table 4).

Table 3. Pearson correlation for continuous variables

Variable	*ROE*	*FBODS*	*FTM*	*FSLOG*	*LVG*	*AGE*
ROE	**1.000**					
FBODS	0.059	**1.000**				
FTM	0.106*	0.410***	**1.000**			
FSLOG	-0.053	-0.188***	-0.249***	**1.000**		
LVG	-0.333***	0.005	-0.105*	0.082	**1.000**	
AGE	-0.122**	0.164***	0.109**	0.047	0.423***	**1.000**

*Note: Significant levels are as follows: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$, respectively.*

4.3. Multivariate regression analysis

The selection between the pooled estimate and a random-effects model was made using the Breusch-Pagan Lagrangian multiplier (LM) test and the result indicated the following; Prob. > Chibar^2 that is less than 0.05 (refer to Table 5) but more than 0.05, indicating the appropriate use of OLS (Breusch & Pagan, 1980; Gujarati & Porter, 2013).

Table 4. VIF and tolerance results

Variable	*VIF*	*1/VIF*
AGE	2.41	0.4146
BakSTOR	2.32	0.4302
FTM	1.28	0.7800
LVG	1.28	0.7823
FBODS	1.24	0.8045
FSLOG	1.11	0.9018
Mean VIF	1.61	

*Note: Significant levels are as follows: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$, respectively.*

Table 5. Test of Breusch–Pagan LM and Breusch–Pagan/Cook–Weisberg test for heteroskedasticity

	Breusch–Pagan LM test	*Breusch-Pagan/Cook-Weisberg test for heteroskedasticity*
Chibar^2(01)	0.00	4.48
Prob. > Chibar^2	1.000	0.0343

Table 6. Multiple regression results using the OLS model

Variable	*Coefficient*	*T-statistics*
FBODS	0.004	0.25
FTM	0.011	0.62
FSLOG	-0.017	-1.02
BakSTOR	Include	
LVG	-0.415	**-4.74*** **
AGE	0.000	-0.15
Year	Include	
_cons	0.577	**4.11*** **
Number of obs.	314	
Prob. > F	0.000	
R-squared	0.216	
Root MSE	0.175	

*Note: Significant levels are as follows: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$, respectively.*

In Table 6, positive correlations are supported between *FBODS* and *FTM*, and firm performance but the correlations are insignificant. In addition, both firm size and age had no effect on firm performance, while leverage had a negative significant relationship with the same.

5. ALTERNATIVE PROXY MEASURES OF WOMEN ON BOARD OF DIRECTORS

Additional tests were undertaken to confirm the data's correctness, and main regression was used to examine the robustness of proxy measures of the number of women on the board, the percentage of women on the board, and the number of women in upper management. The first proxy is *FBODS* representing the women on board or the number of women board of directors, following Adams and Ferreira (2009), Mihail et al. (2022), and Soare et al. (2022). Meanwhile, *FTM* is the proxy used to represent the women in top management (Moreno-Gómez et al., 2018; Nyeadi et al., 2021; Perryman, Fernando, & Tripathy, 2016). *FBODS_ratio* is the second proxy for the ratio of women board of directors, whereas *FTM_ratio* is the second proxy measure for the ratio of women in top management (measured in percentage).

Based on the regression coefficient results obtained from *FBODS* and *FTM*, positive correlations exist between the variables and firm performance but they are insignificance, which means *H1* and *H2* are rejected. In light of the fact that there is only one female member of the board, performance may be improved by the addition of more. Additionally, the findings showed that control variables with a strong relationship to *LVG* had a connection to the success of businesses (refer to Table 7). The results' robustness relates to alternative measures of the percentage of women on the board members and that of women in top management. Thus, the formula used to represent the models is as follows:

$$ROE_{it} = \alpha_0 + \beta_1 FBODS\_ratio_{it} + \beta_2 FTM\_ratio_{it} + \beta_3 FSLOG_{it} + \beta_4 BakSTOR_{it} + \beta_5 LVG_{it} + \beta_6 AGE_{it} + \varepsilon_{it} \quad (2)$$

Table 7. Multiple regression results using the OLS regression

Variable	*Coefficient*	*T-statistics*
FBODS_ratio	-0.193	-1.17
FTM_ratio	0.103	0.77
FSLOG	-0.016	-0.35
BakSTOR	Include	
LVG	-0.484	**-3.92*****
AGE	0.000	-0.56
Year	Include	
_cons	0.677	**1.79***
Number of obs.	314	
Prob. > F	0.000	
R-squared	0.238	
Root MSE	0.185	

*Note: Significant levels are as follows: * p < 0.10, ** p < 0.05, and *** p < 0.01, respectively.*

The presence of women on boards of directors is expected to improve financial company performance in Saudi Arabia, although the outcomes were insignificant. Tables 6 and 7 demonstrate that the inclusion of women on boards had no effect on the performance of the company, which is consistent with Carter et al. (2010), Chandani et al. (2018), Fernández-Temprano and Tejerina-Gaite (2020), Marinova et al. (2016), Pletzer et al. (2015), and Rose (2007). The conclusion is also consistent with the findings of Brown, Brown, and Anastasopoulos (2002), who found that if corporate governance fails to encourage the business's performance development, female involvement would not contribute to increased firm value. The outcome was somewhat anticipated, given that female representation on boards is just 23%, and firms have only recently started to select women to their boards of directors. The absence of women on the board of directors before 2015 is a primary explanation for the lack of a connection between the variables; nevertheless, the Saudi Arabia system seems to promote women to participate in decision-making, which will have a favorable influence in the near future. Because accounting-based indicators are seen to be a more reliable indicator of a company's financial performance than a set rate of return equal to the risk-adjusted cost of capital, they were used in this study. Furthermore, when investigating the link between corporate governance and commercial success, accounting-based performance assessments are preferred over market-based indicators (Al-Matari et al., 2014).

The study also predicted that Saudi Arabia's financial business performance would benefit from having more women in top management, however, the results disproved this prediction. Tables 9 and 10 showed that there was no impact. D'Amato (2017), Kyaw et al. (2017), Marinova et al. (2016), and Ming and Hock-Eam (2016) all came to similar conclusions. The results are also in line with the notion that women in top management are "useless vases" because they lack the power to participate in decision-making, which reduces their presence to that of a phantom presence and prevents them from making a positive contribution to the success of the company (Tharenou, 1995).

Due to their weaker expertise and labor ability when compared to their male counterparts, females are also referred to as vases, and this finding may also imply that females are able to manufacture smaller FP than men (Eagly, 2007). Given that corporations have only lately began hiring women to top management roles, the involvement of women in top management is just 13%.

6. CONCLUSION

The research looked at the impact of female board of directors and top executives on the performance of Saudi Arabia's financial firms. For the years from 2014 to 2020, there are 315 listed financial businesses, and the research used OLS regression to assess the independent-dependent variable correlations based on the results of the Breusch–Pagan LM test (Breusch & Pagan, 1979). The research also looked at the links between the different metrics and found that the number of women on the board of directors and in top management had no impact on ROE. The results of the alternate measures were likewise the same.

As a result, it is advised that Saudi listed companies adopt the lowest feasible female participation quota and that corporate governance norms be pushed to foster gender diversity and women's involvement on boards and in top management. This may be achieved by developing adequate and sufficient succession plans for the board of directors, as well as instituting an election procedure for choosing committees that give women and men equal opportunities. Finally, it is advised that businesses provide training to women in order to improve their qualifications and bring them up to par with males, prohibiting prejudice based on experience and competence, and ensuring equal access to BOD membership and participation.

According to the authors' knowledge, this is the first empirical study to be conducted in Saudi Arabia that examined the relationship between the influence of female top managers and female board members on business success. Due to a lack of sufficient data, previous research of this caliber has mostly ignored the economies of the GCC. The poll indicates that women make up 13% of top management and 23% of the board of directors. This shows how important it is for legislators to encourage gender balance in the workplace by placing as few women as possible on company boards. Gender balance should be fostered to improve performance by diversifying knowledge, experience, and the capacity to make educated judgments. Because of their important role in making choices that aid improves performance, the Kingdom's goal intended to increase the presence of women.

The engagement of women on the boards of directors and in top managerial positions in listed Saudi financial institutions was the focus of this study, which, like other previous studies, had certain limitations. Future studies should look at the interaction of businesses in GCC countries, as well as other factors including women's education and experience. Women should be explored as a moderating component between corporate governance and company performance. Finally, although our study focused on accounting-based measures (ROE), we believe that marketing-based indicators such as Tobin's Q, market value-added, market-to-book value, and dividend yield should be used as alternatives in the near future.

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APPENDIX

Table A.1. Studies that have been done among Gulf countries

Authors and year	*Title and journal*	*Summary*	*Result and suggestion*
Issa and Fang (2019)	"The impact of board gender diversity on corporate social responsibility in the Arab Gulf states" *"Gender in Management"*	This study focused on CSR as a dependent variable among Gulf countries. This study covered three years (from 2014 to 2016).	The results show a statistically significant correlation between the share of female directors and the volume of CSR disclosures made by companies. They suggest that future research should clarify the position of women on boards in Gulf nations.
Hamdan et al. (2022)	"Presence of women on boards in industrial firms: evidence from GCC countries financial markets" *"International Journal of Management Science and Engineering Management"*	This research examines women on the boards of public industrial businesses in the Gulf. Only 2019 was covered by the research.	According to these studies, women's involvement on boards increases board independence and institutional ownership. In order to attain justice and parity on the labor market and in senior management, the research underlines the need of improving governance characteristics and establishing policies that promote women's involvement in GCC economies.
Jizi et al. (2022)	"Board gender diversity and firms' social engagement in the Gulf Cooperation Council (GCC) countries" *"Equality, Diversity and Inclusion"*	This study focused on firms' social engagement as a dependent variable among Gulf countries. This study covered 11 years (from 2019 to 2018).	Statistics show a slow but steady increase in the proportion of women serving on business boards in the GCC. According to the study, having more women on boards makes it easier to put business ethical requirements, health and safety laws, and climate change initiatives into practice.
Hamdan et al. (2021)	"Women on boards of directors: The moderation role of female labour force participation" *"Competitiveness Review: An International Business Journal"*	In Gulf nations, the labor force contribution of women is being investigated to determine whether it has a moderating impact on the association between firm-level governance characteristics and the gender pay gap. In this study, just the year 2018 was considered.	The results show that women's labor force involvement has a moderating influence. This study is intended to stimulate further investigation into the contributions of women.
Arayssi, Jizi, and Tabaja (2020)	"The impact of board composition on the level of ESG disclosures in GCC countries" *"Sustainability Accounting, Management and Policy Journal"*	This study focused on environmental, social, and governance as dependent variables among Gulf countries. This study covered 10 years (from 2008 to 2017).	They discovered that fostering social responsibility via increased board independence and female board membership helps to boost a company's good image. Future studies should focus more on analyzing discrepancies between factors, according to the authors.

Table A.2. Studies that have been done in Sadia Arabia

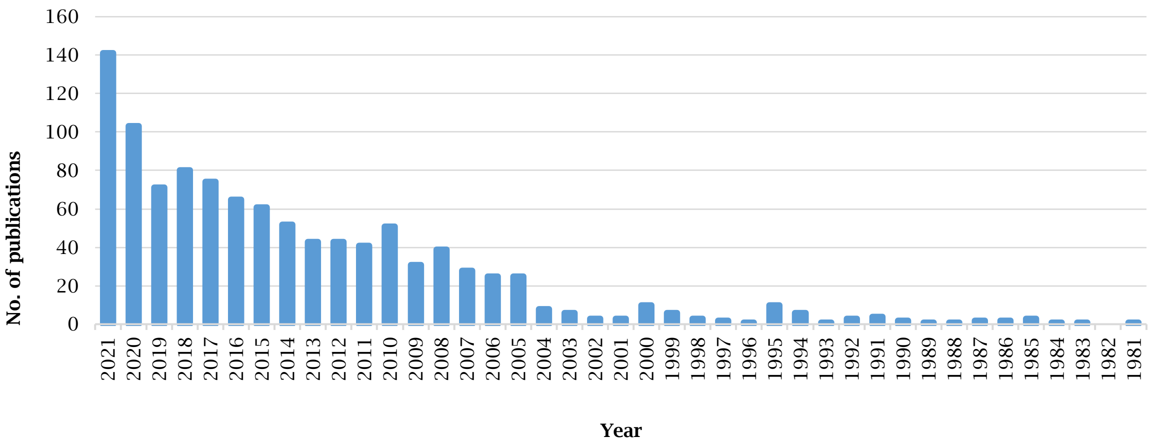
Authors and year	*Title and journal*	*Summary*	*Result and suggestion*
Issa et al. (2021)	"Exploring the relationship between female director's profile and sustainability performance: Evidence from the Middle East" *"Managerial and Decision Economics"*	The goal of this research is to investigate how using human capital might help female board directors promote the growth of sustainable performance. In order to determine the overall number of non-financial businesses in the area, companies that are not in the financial sector that were traded on the stock markets of a few nations between 2014 and 2018 were used.	The objective of this empirical study is to add to the body of knowledge on the effects of various types of female directors on the performance of the organization with respect to sustainability. It goes beyond the taxonomy of female directors. Therefore, any subsequent study must consider all of these categories since it is likely that there are further subgroups of female board members.
Hamdan et al. (2021)	"Women on boards of directors: The moderation role of female labour force participation" *"Competitiveness Review: An International Business Journal"*	In order to better understand the link between firm-level governance variables and the representation of women on boards of directors in Gulf publicly traded businesses, this research will look at the moderating effect that female labor force participation has on that relationship. The sample of publicly listed companies for this year consists of 436 different entities.	The results of the research imply that the link between board size and the percentage of women who serve on boards is moderated by the number of women in a country's labor force.
Al Khathaami et al. (2020)	"Stroke mimics: Clinical characteristics and outcome" *"Neurosciences"*	It was chosen to investigate the occurrence of stroke mimics (SM) and learn more about their characteristics in Saudi patients who presented to the emergency department with a sudden neurological impairment and a suspected stroke. The sample consists of electronic health records from the Kingdom of Saudi Arabia from February 2016 to July 2018.	The research found that younger people and women were more likely to experience stroke mimics than older people. SMs had a lower prevalence of cardiovascular risk factors such as arterial hypertension, diabetes, and smoking. Individuals diagnosed with SM spent less time in the hospital, had fewer severe deficits, and were more likely to be independent when they were released.

Table A.3. Number of studies that have been done from 1981 to 2021

Year	*Number of publications*	*Year*	*Number of publications*	*Year*	*Number of publications*	*Year*	*Number of publications*
2021	141	2020	103	2019	71	2018	80
2017	74	2016	65	2015	61	2014	52
2013	43	2012	43	2011	41	2010	51
2009	31	2008	39	2007	28	2006	25
2005	25	2004	8	2003	6	2002	3
2001	3	2000	10	1999	6	1998	3
1997	2	1996	1	1995	10	1994	6
1993	1	1992	3	1991	4	1990	2
1989	1	1988	1	1987	2	1986	2
1985	3	1984	1	1983	1	1982	0
1981	1	1980	0	/	/	/	/

Source: Scopus database.

Figure A.1. Indicators of studies that have been done from 1981 to 2021



Source: Scopus database.