

# BOARD OF DIRECTORS' ATTRIBUTES EFFECTS ON FIRM PERFORMANCE AND THE MODERATING ROLE OF WOMEN: ALTERNATIVE MEASUREMENTS

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## Abstract

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The purpose of this study is to look at the relationship between business performance and the qualities of the board of directors (BOD). This study also looks at how women fit into this connection. Additionally, this study examines the association between performance of firm (FP) and board effectiveness. This study uses regression analysis to determine whether the attributes of the BOD have an impact on performance. This study uses ordinary least squares (OLS) regression to test how women moderate the association between board of director traits and performance. Furthermore, by combining extra data with attentional tests, this study validates the main findings. Additionally, the BOD's efficacy was evaluated. This study establishes a negative and statistically significant association between board size and non-executive membership. Conversely, the presence of women on the board with backgrounds in accounting and finance has a noteworthy and favorable impact. This study validates the primary findings by examining the association between board of director qualities using an additional assessment method. Furthermore, this study discovers that the association between company performance and board of director qualities is moderated by the participation of women. Ultimately, this research indicates a strong correlation between business performance and the efficacy of the board.

**Keywords:** Board of Director Attributes, Women on the Board, Alternative Measurements, Firm Performance and Market of Saudi Arabia

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## 1. INTRODUCTION

The oversight of financial activity is now one of the topics being considered at the world level (Arvanitis et al., 2022; Fajarwati & Witiastuti, 2022; Goel et al., 2022), namely Arab countries (Alshirah et al., 2022; Arayssi & Jizi, 2019; Kanakriyah, 2021), Gulf Cooperation Council (GCC) (Almaqtari et al., 2020; Najjar, 2012) and the Kingdom of Saudi Arabia

(KSA) (Aljaaidi & Bagais, 2021; Al-Matari et al., 2022; Aryan et al., 2022; Shukeri & Alfordy, 2022). It is a crucial element in ensuring the success of organizational and economic changes. Good corporate governance (CG) is intended to supply shareholders, management, and all other stakeholders with information to improve the functioning of these organizations (Herrera-Barriga & Escandon-Barbosa, 2023; Ullah et al., 2022). Despite the multiplicity of governance

mechanisms such as the board of directors (BOD) (Quoc Trung, 2022), the audit committee (Aljaaidi & Bagais, 2021; Buallay, 2018), and corporate ownership (Abdallah & Ismail, 2017; Nguyen & Dang, 2022), BOD is often regarded as a crucial mechanism and primary structure that safeguards the connection between economic organizations and their owners (Fajarwati & Witiastuti, 2022). According to Cadbury's (1992) report, BOD plays a pivotal role in the progress and success of institutions, so the governance of economic institutions is more concerned with the performance and composition of BOD. The presence of an effective BOD is reflected in the performance of economic institutions (Al-Matari, 2019). According to the agency theory, BOD undertakes various oversight tasks, including overseeing managers' behavior to mitigate conflict of interest and harmonize the interests of shareholders and management.

Current research has once again linked governance flaws to the recent financial crisis (Berglof, 2011). Boards have come under fire for being too complacent and unable to prevent the calamity, prompting the development of fresh analytical methods. Therefore, in both academic and regulatory circles, there was an uptick in focus on board qualities including age, education, gender, and nationality (together known as "demographic diversity"), all of which may influence the efficiency of the decision-making process. The goal is to ascertain how these characteristics impact the board's operations and, eventually, company success. Johnson et al. (2013), while highlighting the need of looking into the causes of the results' variety, acknowledge the significance of all these elements. Further evidence for this viewpoint came from empirical research that showed how the composition of the board as well as its operational procedures might increase effectiveness (Minichilli et al., 2009). Using the findings of these studies as a foundation, board practices and good governance norms pushed businesses to diversify their boards, develop induction programs, hire outside experts to help with board self-assessment, and other initiatives.

Numerous studies have examined the effect of BOD on firm performance (FP) in this setting. However, most of them (Junus et al., 2022; Kusmayadi et al., 2022) were undertaken in advanced economies, while a few were conducted in developing nations. Research about the KSA is scarce. In fact, one factor influencing board diversity is the presence of female directors, which is regarded as an indication of sound CG. Adams and Ferreira's (2009) female directors exhibit higher levels of engagement compared to their male counterparts. Consequently, increasing the representation of women on boards enhances their effectiveness. Liu et al. (2014) found that businesses with boards consisting of three or more female members have a more significant influence on performance compared to those with a smaller number of women. Likewise, Strøm et al. (2014) note that firms do better when they have women in management positions. Also, women managers are a good way for companies to talk to their customers, who are mostly women. So, the firms' social performance improved because more women were involved in making decisions. In a nutshell, having

more women on boards makes performance more focused on the needs of society (Périlleux & Szafarz, 2015). Although it is important to have women on BOD, not many studies have looked at how the number of women in senior management and on BOD (the percentage of women on boards and the number of women managers) affects how well a company is doing (Al-Matari & Alosaimi, 2022; Hamdan et al., 2022) in GCC countries, namely the KSA.

In light of the aforementioned, the following inquiries reveal the study's problem:

*RQ1: How does the success of the financial sector in the KSA impact BOD qualities as a key governance mechanism?*

*RQ2: Does the presence of women on the board moderate the association between director performance and board attributes?*

This interest is motivated by the idea that gender diversity may lead to more beneficial outcomes in the real world (Boubacar, 2020). To the best of our knowledge, no research has been done on this topic in relation to Gulf nations like the KSA. This study used ordinary least squares (OLS) regressions to empirically pursue our study goal. For the years 2014 through 2022, the panel included 414 yearly observations from 46 different companies. The findings indicate that the performance of the financial industry is adversely and considerably impacted by board size (BOSE) and the board's non-executive members. Finance and accounting — whatever the number of women on the board and the experience of the board — have a favorable and substantial impact on the performance of the financial industry. The findings also indicate that the performance of the financial industry is considerably and adversely impacted by the position of women in BOD. Furthermore, the findings show that this study's primary findings are supported by a test of the link between BOD attribute relationships utilizing alternative measurement. In addition, this research discovered that the contribution of women to BOD qualities and business performance was moderated. The study's final finding is that there is a strong correlation between board effectiveness and business success. So, the greater involvement of women in decision-making had a favorable impact on social performance. In essence, performance is boosted by more gender diversity at the board level (Périlleux & Szafarz, 2015).

This study contributed numerous additions to the review of literature currently in print. First, there is a dearth of empirical data about the connection between female boardroom presence and corporate success in the developing markets (Hamdan et al., 2022). The majority of earlier studies relied on information from the advanced markets (Dwaikat et al., 2021; Moreno-Gómez et al., 2018). This research supports such initiatives, more especially by examining how gender diversity in BOD impacts the operation of the company. Then, using data from the KSA, a developing nation, this research offers empirical support to the literature on the link between the participation of women in the boardroom and firm success. For instance, the *Women Matter* research revealed that businesses with women at the top of the organization do better financially (Devillard et al., 2012). Due to conflicting results, there is no agreement on whether having

more women on BOD would improve FP (Wang, 2020). Second, to make a significant contribution to the literature on CG, this study focuses in particular on the analysis of the role of directors in the effectiveness of the board by examining how certain directors' characteristics can improve their capacity to carry out their board responsibilities and thus, contribute to the potential of the board. Additionally, the majority of the studies on this subject mostly focus on industrialized nations (Dwaikat et al., 2021). In this research, a sample of businesses from a nation with a continental financial sector is analyzed. BOD performs a crucial CG function in this setting.

Third, we use an endogeneity technique to look at the correlation between women on boards and successful businesses. There are two possible reasons for this trend: first, companies with more diverse boards tend to do better financially, and second, boards of directors of successful companies tend to have more women. This suggests that the worrying correlation between female board members and the company's financial performance may be the primary focus of the research. Fourth, it explored the topic of directors' roles in board effectiveness in great detail, contributing to the body of knowledge on CG by assessing how specific director attributes can enhance the board's ability to perform its duties and, in the end, maximize its potential. Finally, it is a unique research with another primary goal, which is to determine the connection between the success of businesses and the rating of BOD's qualities. This research also demonstrates that the integration between the size of women on the board and BOD effectiveness has a substantial impact on corporate performance.

The procedure for selecting the KSA will be looked at in this section. With the biggest economy in the Middle East and North Africa (MENA), the KSA enjoys the greatest degree of political and economic influence in the region and contributes 38% of the region's gross domestic product (GDP). The Saudi Arabian Monetary Authority (SAMA) asserts that despite the slowdown in economic development in developed and developing G20 countries in 2018, the nation's economy has significantly recovered, mostly due to the oil industry. The Saudi economy is still strong in spite of the global economic unpredictability that is developing. According to Young-Eun and Alenezi (2018), Saudi Vision 2030's present growth targets indicate that major firms such as Aramco and SABIC, together with financial institutions, are becoming increasingly important in the Saudi economy.

Furthermore, prior research examining the connection between CG and FP (Al-Matari, 2014; Hashim & Amrah, 2016) failed to consider the significant contribution of the financial sector to fostering economic growth. Past studies have shown that the financial industry is vital to a country's economic growth (Al-Matari et al., 2022), which is why this study focuses on financial sector firms listed on Bursa, the KSA. In addition, previous research about the link between CG and performance in GCC nations like the KSA neglected the significance of female board members in enhancing performance. Both Bagais and Aljaaidi's (2020) and Hamdan and Al Mubarak's (2017) studies demonstrated this error. With this research, we hope

to better understand the direct and indirect ways in which women have impacted the financial sector.

Prior global research has shown inconsistent findings about the correlation between performance, women's representation on boards, and CG (Aryan et al., 2022; Boubacar, 2020). The current study is to investigate the moderating influence of women in enhancing the link between the traits of BOD and their performance.

The research is structured in the following manner. The research concept and examination of existing literature are elucidated in Section 2. Section 3 provides a comprehensive explanation of the research design. Section 4 proposes a concise overview of the main discoveries obtained from the empirical investigation. The findings are analyzed in Section 5. The implications and findings of the study are emphasized in Section 6. Also, Section 6 comprises a compilation of constraints and suggestions for prospective studies.

## 2. LITERATURE REVIEW AND HYPOTHESES

### 2.1. Theory related to study

The agency theory as proposed by Jensen and Meckling (1976), posits that if corporate executives are closely monitored and adequately incentivized, shareholders can be confident that the executives will act in their best interests. Businesses are said to be able to use resources efficiently when BOD puts in place a solid monitoring system and strong incentives to drive management to meet goals that are in the best interests of the firm. However, there are notable variations across nations with varying degrees of investor protection and independent directors' efficacy (Ben Barka & Legendre, 2017).

According to agency theorists, a corporate board's principal role is carried out more effectively if there are more outside members on the board (Jensen & Meckling, 1976). According to a number of authors, corporate boards should contain more directors from outside the company, in line with the agency theory (Cadbury, 1992; Fama, 1980). The fact that outside directors are independent and have reputations to uphold as specialists means that they cannot be coerced by management, as shown by (Fama, 1980), and they can thus be trusted to successfully serve in management oversight roles.

The ultimate protector of shareholder interests and the highest-ranking decision-making body in any company is BOD (Puthusserry et al., 2021). Scholars have studied if and when boards of directors add to shareholder value for more than 50 years (Quoc Trung, 2022). Agency theory (Bommaraju et al., 2019) is the most popular hypothesis in this field. According to agency theorists, the board's primary responsibility is to oversee management on behalf of the company's shareholders, and efficient oversight improves business success (Hillman & Dalziel, 2003). The fundamental justification for board oversight derives from the possibility that the division of ownership and control may induce managers to prioritize their own interests above those of shareholders (Fama & Jensen, 1983a). In light of the study and advocacy of agency theorists, businesses have increasingly substituted independent directors for inside directors (Joseph et al., 2014).

## 2.2. The attributes of board of directors' and firm performance

Because the BOD plays a critical role in CG, it is vital to comprehend how the composition and performance of the board impact this responsibility. The board's duty, according to agency theory, is to make sure that the company's leaders make decisions that are optimal for investors (Dwaikat et al., 2021; Freihat et al., 2019). BOD serves as a company's first line of defense against the poor judgment of chief executive officers (CEOs). This is important for the operation of the company (Kumar & Zattoni, 2018). One of the key components of the governance process is BOD, and many businesses desperately need excellent CG (Kyere & Ausloos, 2021; Ullah et al., 2022). Good CG standards provide a number of important benefits, including making it easier for businesses to access international capital markets and get better terms when looking for foreign investment (Mahrani & Soewarno, 2018). Consequently, the advisory and oversight roles of BOD are the two most crucial ones (Freihat et al., 2019; Horváth & Spirollari, 2012). The advising position entails giving the CEO professional guidance and giving them access to important data and resources (Fama & Jensen, 1983a, 1983b). Also, the board must oversee, punish, and dismiss incompetent management teams to guarantee that executives operate in the best interests of shareholders (Al-Matari, 2019; Quoc Trung, 2022).

Subsequently, the literature has extensively scrutinized and deliberated on the function of boards of directors in CG. The discussion of the functions of insider and outside directors was originally presented by Jensen and Meckling (1976). In addition, Jensen (1993) expressed disapproval towards boards for their failure to provide an early warning mechanism that might have helped the firm rectify difficulties before they escalated into a crisis. Jensen emphasized the importance of boards as the highest level of the internal control system. Subsequently, the autonomy of the board, which is considered crucial for its supervisory function and affects several aspects of the company's performance, has been a highly discussed subject in academic literature. As a result, several characteristics were examined, which together constitute its "structural diversity" (Tejerina-Gaite & Fernández-Temprano, 2021). The variables encompassed in the study were the proportion of non-executive directors, the board's size, the distinction between the chairman and the CEO, and the frequency of board meetings (BOMG) (Brick & Chidambaran, 2010).

The BOD was suggested as a well-known internal governance method to increase the company's effectiveness (Goel et al., 2022; Mishra & Kapil, 2018). In conclusion, this essay reviewed the importance of BOD in one of the main nations that make up the GCC. According to Hamdan and Al Mubarak (2017), more investigation into how board independence affects CG might be helpful in identifying the best kind of board structure. The subsequent segment centers on the principal attributes of BOD, encompassing the board's magnitude (count), the proportion of non-executive directors on the board, the frequency

of board sessions, the board's dedication, the proportion of members possessing accounting and finance expertise, and the representation of women on the board.

### 2.2.1. The board size (number) and firm performance

One of the focused governance methods that may considerably help to activate the performance of the board is the size of BOD (Fernández-Temprano & Tejerina-Gaite, 2020). The number of board representatives may be used to determine the size of BOD (Al-Matari et al., 2012). Thus, one of the most important factors affecting a company's success is the size of the board (Merendino & Melville, 2019). A bigger board benefits from more potential diversity by having directors recruited from a range of professions and backgrounds, each with their own unique set of talents and areas of experience (Pearce & Zahra, 1992). The majority of the agency theory's proponents argue against this. Indeed, De Andres et al. (2005) and Jensen (1993) argue that a bigger board is less successful in improving company performance because fresh ideas and perspectives are less likely to be presented by a vast pool of directors, and the monitoring mechanism is probably less effective (Ahmed et al., 2006; Dalton et al., 1999). According to agency theory, a bigger board will enable management monitoring to be more effective, perhaps have a broader range of expertise and knowledge, and provide better proposals for business advancement, leading to superior FP (Jensen & Meckling, 1976).

The functions and obligations of the board members hold great significance, as recognized by the Saudi Arabian Capital Market Authority (SACMA). Non-executive members must make up the majority of the board, and the proportion of independent members must be at least two or one-third of the total number of board members, whichever is higher. According to these established rules, non-executive members must make up the majority of the board (SACMA, 2019). According to Yermack (1996), members of large boards may not be able to properly monitor management since they are often less cohesive and communicate less. Previous empirical studies suggest that the results remain equivocal. Numerous studies have found a favorable correlation between performance and the size of BOD (Fajarwati & Witiastuti, 2022; Quoc Trung, 2022). Furthermore, a few empirical studies have demonstrated a connection between a big BOD and subpar business performance (Al-Matari et al., 2022; Altass, 2022). However, other research has not shown a link between good governance and a sizable BOD (Hamdan & Al Mubarak, 2017; Kusmayadi et al., 2022). In light of the aforementioned, the following is the study hypothesis:

*H1: BOSE has a negatively significant association/impact on FP.*

### 2.2.2. The board of non-executive (ratio) and firm performance

In order to guarantee that the board makes decisions that are beneficial for the company, it is crucial to have a sufficient number of external

directors who can serve as an internal control mechanism (Fama, 1980; Fama & Jensen, 1983a). Board of non-executive (*BOIER*) is therefore defined as the proportion of independent/non-executive directors (NEDs) to all other directors. A board with more independent directors is said to be able to better monitor managers' opportunistic behavior, protect the interests of shareholders, and help increase the value of the company's stock than one with a large number of dependent members (Freihat et al., 2019). The agency hypothesis states that the management team is led by independent directors. They guarantee the accuracy of the financial information that companies report. In addition, independent directors and better business performance are uncorrelated, according to Darko et al. (2016) and Leung et al. (2014). According to the agency theory, boards with a higher proportion of independent directors are considered to be more efficient in supervising and managing the actions of the management (Jensen & Meckling, 1976). The presence of independent directors is crucial for ensuring strict compliance with legal requirements and protecting the interests of minority shareholders (Fama & Jensen, 1983a).

The importance of the autonomy of non-executive board members is recognized by SACMA. They have set guidelines that state that there may be no less than three of these members or one-third of the board's overall membership (SACMA, 2019). The relationship between non-executive directors' presence and business success is a topic of debate and contention (Fajarwati & Witiastuti, 2022; Quoc Trung, 2022). The first viewpoint holds that there is a positive and substantial correlation between the non-executive directors' board and performance (Fajarwati & Witiastuti, 2022; Quoc Trung, 2022). The second examiners found a substantial and unfavorable correlation between FP and *BOIER* directors (Altass, 2022; Fajarwati & Witiastuti, 2022; Hamdan & Al Mubarak, 2017). The majority of studies indicate that there is no substantial correlation between non-executive board performance and previous exams (Arvanitis et al., 2022; Goel et al., 2022; Quoc Trung, 2022). The following study hypothesis is derived in accordance with prior approval:

*H2: The non-executive of BOD has a positively significant association impact on FP.*

### *2.2.3. The board meeting (number) and firm performance*

One of the key proxies used to assess the level and efficacy of corporate monitoring is the number of *BOMG* held annually (Horváth & Spirollari, 2012; Jensen, 1993; Vafeas, 1999). According to some, attending *BOMG* is a crucial way for directors to get detailed knowledge about the company and allows them to carry out their oversight responsibilities (Al-Matari et al., 2022; Ben Barka & Legendre, 2017). According to Fajarwati and Witiastuti (2022), *BOMG* is a gathering of the board's directors to discuss and resolve pertinent topics pertaining to their prior experiences, present situations, and prospective difficulties about the company's existence. According to agency theory, frequent board meetings may assist businesses in enhancing the performance of their management teams by

performing regular oversight, careful monitoring, offering helpful consultancy, and providing the board with proper management (Jensen & Meckling, 1976). *BOD* is seen as an important factor in influencing a company's success, particularly via choices made based on meeting outcomes that will be applied throughout the firm (Kakanda et al., 2016).

Independent directors rely heavily on-board meetings as their primary source of information on the state of their companies' businesses and the progression of their strategic plans (Lenz & Hahn, 2015). They can identify good CG during meetings, too. In addition, institutional investors often use *BOMG* to assess directors' diligence and dedication (Ben Barka & Legendre, 2017). In the setting of the KSA, the *BOD* of public limited businesses is required to have meetings at least twice a year in accordance with the Saudi Companies Law (SACMA, 2019). Members of the board who have not attended three meetings in a row will have their membership revoked from the board. Previous empirical investigations on the relationship between board meetings and performance have shown conflicting conclusions. According to certain research, board meetings and performance are positively correlated (Fajarwati & Witiastuti, 2022; Freihat et al., 2019). Additionally, some empirical researchers discover a negative correlation between board meetings and company performance (Altass, 2022; Alshaboul & Zraiq, 2020). On the other hand, other researches discover that there is no important association between the meeting of *BOD* and performance (Al-Matari et al., 2022; Ben Barka & Legendre, 2017). The following research hypothesis is based on previously accepted data:

*H3: BOMG has a positively significant association on FP.*

### *2.2.4. The board commitment (ratio) and firm performance*

Board commitment (*BOCT*) is the measure of the extent to which board members are dedicated and actively engaged in the organization they represent. Board dedication can manifest in several means, including active participation in meetings, financial contributions, advocacy on behalf of the organization, and diligent fulfillment of fiduciary responsibilities. The organization's performance, viability, and board member satisfaction and retention rely heavily on the devotion of the board (Al-Matari, 2014; Minwer Al-Rimawi, 2001). Furthermore, job differentiation promotes freedom for making an educated choice and boosts company performance, ensuring the integrity of the report for concerned parties without leaving out important information (Jensen & Meckling, 1976).

The board's dedication helps with goal attainment and problem-solving. The attendance at meetings, or more specifically, the ratio of attendees over the course of a year, is often used to measure *BOCT*. Attending meetings demonstrates the board members' commitment to analyzing problems and finding solutions in order to make wise judgments, accomplish goals, and satisfy investors (Al-Matari, 2014). In a similar vein, punctuality in regular work earns investors' trust in the business by

demonstrating a dedication to working hard to increase the company's worth and to entice new investors (Minwer Al-Rimawi, 2001). *BOCT*, in general, demonstrates how each member is required to improve the success of the company as a whole (Garg, 2007). Board dedication is a crucial quality, but sadly, literature has not given it enough attention. Studies exploring the connection between performance and *BOCT* include Al-Matari et al. (2022), Garg (2007), and Shao (2010). Based on the above, the study hypothesis is given as follows:

*H4: BOCT has a positively significant impact on FP.*

### **2.2.5. Board experience of accounting and finance (ratio) and firm performance**

There is little literature analyzing how directors' experience of accounting and finance (AFE) affects a company's performance (Tejerina-Gaite & Fernández-Temprano, 2021). Indeed, even the idea of experience itself lacks clarity. For illustration, the preceding five years' holdings in managerial posts and board seats are considered experience (Filatotchev & Bishop, 2002). Finkle (1998) measures expertise by looking at things like the number of directors, their academic backgrounds, their financial expertise, and whether or not they have connections to investors in the company. Over time, the concept of director experience has grown to encompass not only the external ties measured by metrics like interlocking directorships, but also the internal experiences measured by metrics like founder influence, board tenure, or employee representation, as well as the individual experiences measured by metrics like managerial tenure and age (Tejerina-Gaite & Fernández-Temprano, 2021).

Researchers often work on the premise that the demographic traits of directors have an impact on their thinking, actions, and decision-making, which subsequently affects the success of the firm (Forbes & Milliken, 1999). The director's tenure on the board and their involvement in other quoted boards are examples of human capital attributes, skills, and experiences that contribute to the decision-making process. Such experiences significantly influence the directors' priorities and their decision-making process on what aspects to emphasize (Johnson et al., 2013). Finally, the affiliations that directors now possess with other firms might be categorized as social capital. These social relationships exert influence on the activities of both individual directors and the board as a collective entity (Tejerina-Gaite & Fernández-Temprano, 2021).

According to Barney (1991), directors who have previously worked for other companies are likely to have gained tacit knowledge, which is difficult to duplicate and is considered an intangible asset. This might potentially have beneficial impacts on the market. Employing seasoned directors frequently enhances the board's range of viewpoints and understandings, while diminishing the likelihood of the board making strategic decisions that are biased by its own preconceptions. Carpenter et al. (2001) state that it also helps the organization to easily access various network resources. In this sense, appointing directors with experience in the business yields declared returns that are much higher than those of hiring rookie directors (von Meyerinck et al.,

2016). Previous empirical research on the relationship between BOD' experience in finance and accounting and performance has produced limited and inconclusive results. According to certain research, BOD experience in finance and accounting is positively correlated with success (Al-Matari et al., 2022). Furthermore, according to certain empirical examinations, BOD' experience in finance and accounting has a detrimental effect on the success of the company (Al-Matari et al., 2022). Conversely, some researches discover no meaningful correlation between BOD' experience in accounting and finance and success (Al-Matari et al., 2022; Tejerina-Gaite & Fernández-Temprano, 2021). In light of the aforementioned, the following is the study hypothesis:

*H5: AFE of BOD has a positive significant association on FP.*

### **2.3. The role of women in board of directors and its impact on firm performance**

The underrepresentation of women on BOD is an issue that has garnered attention from researchers, the government, society, and shareholders, as highlighted by Al-Matari and Alosaimi (2022) and Jeet (2020). Given the instances of financial crises and company failures in the past, it has become crucial to evaluate CG practices. The underutilization of the skills of 50% of the workforce, particularly in times of financial crisis and CG issues, is particularly concerning due to the lack of equality. Requests for women to have a higher percentage of board posts have been made, specifically in light of the theory that the male preponderance in corporate board rooms may have led to the collapse of WorldCom and Enron (Ehrhardt & Nowak, 2003). Men still predominate in boardrooms, despite desperate attempts to raise the proportion of women on corporate boards. Growing awareness of gender diversity is largely due to the underrepresentation of women on corporate boards, even though women are more likely than males to possess the same fundamental qualifications and abilities.

The role of nominated director, which is held by a party within the company to represent its interests, can be filled by women. According to Jeet (2020), women can also hold independent director positions without being subject to rotational retirement. Women may possess a greater understanding of specific markets and customer segments than men, as they are more likely to have backgrounds outside of business (Arfken et al., 2004). This could be attributed to the fact that female directors tend to have more diverse experiences (Hillman & Dalziel, 2003; Singh et al., 2008). By incorporating diverse perspectives, female team members can contribute to enhancing global creativity and innovation (Ballal & Bapat, 2020).

It is anticipated that directors will have a wider variety of task viewpoints and work experiences as a result of gender diversity (Weck et al., 2022). As a result, board decision-making will be more balanced and of greater quality (Weck et al., 2022). Female directors may serve as a tool for monitoring and controlling board activity (Adams & Ferreira, 2009). To foster positive customer connections, several businesses nominate women to their boards

of directors (Liu et al., 2014). In the same path, more accountable managers and better monitoring abilities are two benefits of gender-diverse boards (Adams & Ferreira, 2009). Furthermore, board gender diversity may serve as an additional governance instrument to support businesses with poor governance (Gul et al., 2011). As mentioned by Phillips et al. (2009), and Weck et al. (2022), when women officially assume leadership positions, it is simpler for them to overcome gendered status prejudices and prove their value to others by contributing to tasks in a distinctive way.

As previously explained, internal directors are capable of monitoring and supervising board matters to the same extent as outside directors (Richardson et al., 2016). Moreover, female directors exhibit greater independence of thought, possess higher moral and ethical standards, take less risks, and enable better-informed decisions that increase board legitimacy and transparency (Srinidhi et al., 2011). Among GCC members, the results of past empirical study on the link between the performance of boards of directors with women on them remain ambiguous and uncommon (Al-Matari et al., 2022). Some studies have found a favorable correlation between performance and the number of women on BOD (Arayssi & Jizi, 2019; Arvanitis et al., 2022; Quoc Trung, 2022; Sarkar et al., 2012; Shukeri & Alfordy, 2022). Furthermore, some empirical studies find that the presence of women on BOD negatively impacts the company's ability to operate (Fajarwati & Witiastuti, 2022). On the other hand, a number of studies find no connection between the presence of women on BOD and performance (Marquez-Cardenas et al., 2022; Quoc Trung, 2022). Thus, it makes sense to believe that an increase in the number of women on boards of directors will improve the performance of companies. Thus, this study investigates the following supposition:

*H6: The women on BOD have a positively significant impact on FP.*

#### **2.4. The moderate role of women on the board of directors on the association between attributes of board of directors on firm performance**

It is important to consider if further study on boards of directors is still necessary after many decades of investigation. Despite the fact that board research has developed and refined over time, in our view, the answer is unquestionably yes. Future studies may focus on a number of topics that have been identified. For instance, it should investigate boards of directors in greater detail for various types of businesses (D'Amato & Gallo, 2017; Zattoni et al., 2015). It may explore whether mediating and moderating factors influence the capacity of boards of directors to carry out their responsibilities, such as how the presence of female board (FBDR) members affects both the organization's internal procedures and its overall performance (Kumar & Zattoni, 2016). Additionally, as boards become more adept at navigating the complexity and uncertainties that come with company strategic choices, their involvement in advising and forming strategy may increase (Ararat & Yurtoglu, 2021; Fajarwati & Witiastuti, 2022).

The number of FBDR members is increasing, albeit slowly, according to recent studies (Pathan &

Faff, 2013). Many countries have implemented policies aimed at achieving gender equality on boards, and some even mandate that companies appoint at least one woman to their BOD (Kılıç & Kuzey, 2016). For instance, Norway mandates a minimum of 40% FBDR members (Adams & Ferreira, 2009). In both developed and developing markets, women make up a disproportionately small portion of the boards of directors for businesses (Al-Matari & Alosaimi, 2022; Jeet, 2020). There are several theoretical justifications for the connection between the success of the firm and the gender representation on BOD. However, there is still disagreement over the association between the presence of women on BOD and the success of the firm, based on the varied and sometimes contradictory results from earlier research (Kılıç & Kuzey, 2016). These contradictory results are not unexpected, in fact, given how difficult it is to conceptually and practically link gender diversity in BOD to business success (Carter et al., 2010).

According to Adams and Ferreira (2009), having a more gender-diverse board encourages more effort to be put into checking, which improves the organization's performance. Accordingly, Terjesen et al. (2016), who studied how women function as moderators on the board, separately identified the positive moderator. They advise conducting more studies to examine BOD's moderating influence in the company's performance. Therefore, the goal of this study is to determine if the inclusion of women on boards of directors affects the relationship between board characteristics and business success. Therefore, this study looks at the following theory:

*H7: Women on BOD has moderate effect the relationship between BOD attributes on FP.*

#### **2.5. Control variables**

In this study considered to take two control variables, namely *firm size*, and *leverage*, were incorporated into this particular study. The size of a company may be calculated by dividing its annual net income by its total assets. This measurement is comparable to earlier studies (Altass, 2022; Aryan et al., 2022; Tejerina-Gaite & Fernández-Temprano, 2021). The second variable in the set of control variables is called leverage, and it is determined by the ratio of total debt to total equity. These measurements are comparable to those taken (Altass, 2022; Freihat et al., 2019). In conclusion, this research made use of company size and leverage as control factors. In line with other studies, this research, too, employed variables like (Alabede & Muff, 2015; Arvanitis et al., 2022).

#### **2.6. Performance variable as dependent variable**

The generation of profits for the benefit of the company's shareholders is often cited as one of the primary motivations for setting up a business. The capacity of the firm to make profits may serve as a measure of the company's overall level of success (Wardoyo & Veronica, 2013). The performance of a business is essential because it provides firm owners with an indication of the state of the company's finances. Additionally, the performance of a company is essential for

shareholders since it serves as one of the eligibility conditions for making investments (Fajarwati & Witiastuti, 2022). Investors will be interested in putting their money into companies that have high performance since these companies will provide significant returns on their investments (Candradewi & Sedana, 2016). All of the company's activities, or those that serve as a measurement for the success of the company, contribute to its overall performance. The success or failure of a corporation is indicated by its performance (Dewi et al., 2018). According to Balagobei (2018), the performance of the company is used by a variety of stakeholders in order to make sound financial choices such as investment and performance assessment decisions (Fajarwati & Witiastuti, 2022).

The real economic performance of a company at any particular moment is what is meant to be measured when talking about a company's performance. Because it provides investors and analysts with a more accurate picture of a company's true worth, it is a very important metric (Freihat et al., 2019). The degree to which a firm adheres to standards of sound CG is one of the important aspects that play a role in determining the effectiveness of its operations. To put it simply, governance in this context is interested in the actions that all the players who have an interest in the business do to ensure that their interest in the firm is protected (Alkhazaleh & Haddad, 2021). According to the definitions that have been presented thus far, performance may be thought of as the completion of work in order to accomplish the goals of the organization by making the most efficient use of the resources that are at one's disposal.

The performance of the company is a description of the successes of the company manager in managing the firm's operational operations by making use of the company's

resources (Junus et al., 2022; Love & Klapper, 2002). The performance of an organization may be impacted by a variety of variables, including political relations (Faccio et al., 2016; Wati, 2017). In line with the findings of previous investigations (Alshirah et al., 2022; Ullah et al., 2022), The ratio of total debt to total equity serves as the dependent variable, and *ROE* is determined by this ratio. Moreover, among the KSA much research relies on identical measurement such as Altass (2022), and Hamdan and Al Mubarak (2017).

### 3. METHODOLOGY OF RESEARCH

#### 3.1. Sample of study

By looking through the annual reports of listed companies in the Saudi Exchange (<https://www.saudiexchange.sa>), an online the KSA database, the necessary study data about the characteristics of BOD and company performance was located. The study's population comprised 46 businesses from the financial company sector between 2014 and 2022 (not including those for which data was not available). In all, 414 firms are included in the observations. To summarize, the sample for this study was chosen based on the data from the financial industry and the challenge of representing a small number of *FBDR* members.

#### 3.2. Variables and measures

In this section, the measures of the variables, divided into three categories: control variables, dependent variables, and independent variables, are stated. It is possible that Table 1 might have further information.

**Table 1.** Summarized of the variable measurement (Part 1)

<i>Variable (abbreviation)</i>	<i>Measurement of variable (related source)</i>
<i>ROE</i>	Return on equity(ratio) is calculated by dividing net profits by total equity.
<i>BOSE</i>	The size of board (number) represents the number of the board (Altass, 2022; Khalaf, 2022).
<i>BOIER</i>	The board of non-executive (ratio) represents the percentage of the non-executive of <i>BOSE</i> (Khalaf, 2022; Quoc Trung, 2022; Tsene, 2021).
<i>BOMG</i>	The board meeting (number) indicates how many meetings the board has in a given year (Fajarwati & Witiastuti, 2022).
<i>BOCT</i>	The board commitment (ratio) represents the percentage of commitment of the members of BOD to attend the periodic meetings during the year (Al-Matari et al., 2022; Garg, 2007).
<i>BOAFE</i>	The board of accounting and finance experience (ratio) measures the proportion of <i>BOSE</i> with experience in accounting or finance to the total number of directors (Al-Matari et al., 2022; Tejerina-Gaite & Fernández-Temprano, 2021).
<i>FBDR</i>	The proportion of women to <i>BOSE</i> is represented by the size of the women on the board (ratio) (Al-Matari & Alosaimi, 2022; Khalaf, 2022).
<i>FSL</i>	Firm size (log) represents the log of total assets of companies (Altass, 2022; Aryan et al., 2022).
<i>LVGE</i>	Leverage (ratio) represents the percentage the total liabilities to total assets (Altass, 2022; Freihat et al., 2019).
<i>FBDR * BOSE</i>	The size of women on the board ( <i>FBDR</i> ) * the size of board ( <i>BOSE</i> ).
<i>FBDR * BOIER</i>	The size of women on the board ( <i>FBDR</i> ) * the board of non-executive ( <i>BOIER</i> ).
<i>FBDR * BOMG</i>	The size of women on the board ( <i>FBDR</i> ) * the board meeting ( <i>BOMG</i> ).
<i>FBDR * BOCT</i>	The size of women on the board ( <i>FBDR</i> ) * the board commitment ( <i>BOCT</i> ).
<i>FBDR * BOAFE</i>	The size of women on the board ( <i>FBDR</i> ) * accounting and finance experience of board ( <i>BOAFE</i> ).
<i>BODNONEX</i>	The board of non-executive ( <i>BODNONEX</i> , number) represents the number of the non-executive of board to <i>BOSE</i> .
<i>BoardACEX</i>	Finance and accounting the experience of the board ( <i>BoardACEX</i> , number) indicates how many members of BOD had prior expertise in finance or accounting.
<i>BODIND</i>	The board independence ( <i>BODIND</i> , ratio) represents the percentage of the independence of board to the <i>BOSE</i> .



**Table 1.** Summarized of the variable measurement (Part 2)

Variable (abbreviation)	Measurement of variable (related source)
<i>BOSE<sub>it</sub></i>	The term “ <i>BOSE<sub>it</sub></i> ” is defined by comparing a company’s <i>BOSE</i> to the median <i>BOSE</i> of firms in the same industry and year. If a company’s <i>BOSE</i> is equal to or greater than the median, the value of “ <i>BOSE<sub>it</sub></i> ” is assigned as “0”. If the value is lower, then “ <i>BOSE<sub>it</sub></i> ” is assigned a value of “1”.
<i>BODNONEX<sub>it</sub></i>	The value “ <i>BODNONEX<sub>it</sub></i> ” is assigned as “1” when a company’s <i>BODNONEX</i> is equal to or exceeds the median <i>BODNONEX</i> of firms in the same industry and year. If it does not, the variable “ <i>BODNONEX<sub>it</sub></i> ” is assigned a value of “0”.
<i>BOMG<sub>it</sub></i>	The variable “ <i>BOMG<sub>it</sub></i> ” is assigned a value of “0” when a company’s <i>BOMG</i> is equal to or greater than the median <i>BOMG</i> of firms in the same industry and year. If it does not meet the required criteria, the variable “ <i>BOMG<sub>it</sub></i> ” is assigned a value of “1”.
<i>BOCT<sub>it</sub></i>	The indicator “ <i>BOCT<sub>it</sub></i> ” is assigned a value of “1” if a company’s <i>BOCT</i> is equal to or higher than the median <i>BOCT</i> of firms in the same industry and year. If the company’s bottom of the cycle time ( <i>BOCT</i> ) is lower than the median, the variable “ <i>BOCT<sub>it</sub></i> ” is assigned a value of “0”.
<i>BoardACEX<sub>it</sub></i>	The variable “ <i>BoardACEX<sub>it</sub></i> ” is set to a value of “1” when a company’s <i>BoardACEX</i> is equal to or greater than the median <i>BoardACEX</i> of firms in the same industry and year. If the value is lower, then the variable “ <i>BoardACEX<sub>it</sub></i> ” is assigned a value of “0”.
<i>BODIND<sub>it</sub></i>	The variable “ <i>BODIND<sub>it</sub></i> ” is assigned a value of “1” if a company’s <i>BODIND</i> is equal to or greater than the median <i>BODIND</i> of firms in the same industry and year. If it does not, the variable “ <i>BODIND<sub>it</sub></i> ” is given a value of “0”.
<i>BOARDEFFE</i>	The effectiveness of BOD is assessed using an index that encompasses six variables, namely <i>BOSE<sub>it</sub></i> , <i>BODNONEX<sub>it</sub></i> , <i>BOMG<sub>it</sub></i> , <i>BOCT<sub>it</sub></i> , <i>BoardACEX<sub>it</sub></i> , and <i>BODIND<sub>it</sub></i> . The index ranges from 0 to 10, with a score of 10 indicating maximum efficacy and a score of 0 indicating minimum effectiveness.
<i>FBDR * BOARDEFFE</i>	The size of women on the board * BOD effectiveness.

**3.3. Regression model**

While there are various types of analysis, such as regressions, that can be used to examine the relationship between independent variables, moderator variables, mediating variables, and dependent variables (e.g., OLS, GLS, FGLS, GMM), this study specifically employed OLS regression. This choice was based on the test result ( $\chi^2(01), 0.00$ ;  $\text{Prob} > \chi^2(01), 1.0000$ ), which confirmed that OLS regression is suitable for this study. Furthermore, this study employed supplementary tests to compare the primary findings with other results, as shown in the subsequent section on the tested extra tests.

The regression model outlined below was utilized to examine the association between the attributes of financial organizations’ boards of directors and FP:

$$ROE_{it} = \beta_0 + \beta_1 BOSE_{it} + \beta_2 BOIER_{it} + \beta_3 BOMG_{it} + \beta_4 BOCT_{it} + \beta_5 BOAFE_{it} + \beta_6 FBDR_{it} + \beta_7 FSL_{it} + \beta_8 LVGE_{it} + \text{error terms} \quad (1)$$

It offers the following estimate model to find out if the presence of women on BOD affects the association between BOD characteristics and financial firms’ performance:

$$ROE_{it} = \beta_0 + \beta_1 BOSE_{it} + \beta_2 BOIER_{it} + \beta_3 BOMG_{it} + \beta_4 BOCT_{it} + \beta_5 BOAFE_{it} + \beta_6 FBDR_{it} + \beta_7 FBDR * BOSE_{it} + \beta_8 FBDR * BOIER_{it} + \beta_9 FBDR * BOMG_{it} + \beta_{10} FBDR * BOCT_{it} + \beta_{11} FBDR * BOAFE_{it} + \beta_{12} FSL_{it} + \beta_{13} LVGE_{it} + \text{error terms} \quad (2)$$

**4. EMPIRICAL RESULTS**

Table 2 displays the acquired mean, maximum, and lowest values as a result of the descriptive analysis that was carried out. Based on Table 2, the *ROE* mean is 0.237. With regards to the *BOSE* (number), *BOIER* (%), *BOMG* (number), *BOCT* (%), *BOAFE* (%), and *FBDR* (number) mean values are 8.810, 0.460, 5.488, 0.907, 0.476 and 0.321 respectively. Lastly, the mean value of control variables such as *FSL* (log) and *LVGE* (%) are 6.568 and 0.695.

consistently below 0.80, suggesting that there was no evidence of multicollinearity in the correlations of the model.

**Table 2.** Test of statistics of descriptive

Variable	Mean	Std. dev.	Min	Max
<i>ROE</i> (%)	0.237	0.189	-0.778	1.914
<i>BOSE</i> (number)	8.810	1.492	5.000	12.000
<i>BOIER</i> (%)	0.460	0.215	0.000	1.000
<i>BOMG</i> (number)	5.488	1.658	3.000	12.000
<i>BOCT</i> (%)	0.907	0.039	0.778	0.993
<i>BOAFE</i> (%)	0.476	0.125	0.182	0.778
<i>FBDR</i> (number)	0.321	0.582	0.000	2.000
<i>FSL</i> (log)	6.568	0.963	5.090	8.961
<i>LVGE</i> (%)	0.695	0.152	0.046	0.959

Note: Table 1 defines every variable.

**Table 3.** Test of correlation coefficient

	<i>ROE</i>	<i>BOSE</i>	<i>BOIER</i>	<i>BOMG</i>	<i>BOCT</i>	<i>BOAFE</i>	<i>FBDR</i>	<i>FSL</i>	<i>LVGE</i>
<i>ROE</i>	1.000								
<i>BOSE</i>	-0.165***	1.000							
<i>BOIER</i>	-0.053	-0.435***	1.000						
<i>BOMG</i>	0.066	0.189***	-0.131***	1.000					
<i>BOCT</i>	-0.025	0.585***	-0.185***	0.262***	1.000				
<i>BOAFE</i>	0.095*	0.087	0.156***	-0.155***	0.145***	1.000			
<i>FBDR</i>	0.057	-0.007	0.114**	-0.056	-0.036	0.013	1.000		
<i>FSL</i>	-0.159***	0.348***	0.079	-0.122**	0.300***	0.416***	-0.047	1.000	
<i>LVGE</i>	-0.362***	0.272***	0.052	-0.113**	0.082	0.069	-0.015	0.469***	1.000

Note: Table 1 defines every variable; \*  $p < 0.10$ , \*\*  $p < 0.05$  and \*\*\*  $p < 0.01$  denote significance levels, respectively.

In addition, the variance inflation factor (VIF) findings in Table 4 reveal that the values ranged from 1.03 to 2.17, and they all stayed under 10. Hence, multicollinearity was found to be an unnecessary concern (Hair et al., 2010).

**Table 4.** VIF test

Variable	VIF	1/VIF
BOSE	2.17	0.461
FSL	1.79	0.558
BOCT	1.68	0.595
BOIER	1.4	0.712
LVGE	1.4	0.714
BOAFE	1.29	0.775
BOMG	1.17	0.857
FBDR	1.03	0.972
Mean VIF	1.49	

Note: Table 1 defines every variable.

#### 4.1. Regression results

The study performed the requisite statistical tests to determine the suitable scale for data analysis, and the procedures employed are outlined below. Before proceeding with the investigation, the Breusch-Pagan-Lagrangian-Multiplier (LM) test for random effects is employed to determine whether to utilize the pooled OLS regression or the random effects model. The test result was deemed insignificant due to the absence of noticeable alterations, therefore leading to the acceptance of the null hypothesis. The random effects model is deemed insufficient in this regard according to (Breusch & Pagan, 1979; Gujarati & Porter, 2009). Consequently, the analysis employed OLS regression. In addition, there are a number of breaches of regression analysis when cross-sectional data is taken into account. One such violation is heteroscedasticity, which leads to greater values of  $t$  and  $f$  and a stronger inclination to reject the null hypothesis (Hair et al., 2010). This demonstrates how the fluctuation of the dependent variable from the associated independent variables is not consistently explained, which limits the understanding of the regressor's influence.

In the course of this investigation, two heteroscedasticity tests — Breusch and Pagan's (1979) and Cook and Weisberg's (1983) tests, respectively — were carried out in order to determine if the problem exists. In light of the findings, non-persistent discrepancies were discovered. This necessitates the application of standard errors in accordance with the recommendations provided by Eicker (1963), Huber (1967) and White (1980). This was done in order to find a solution to the problem. The results

of the test for heteroskedasticity are shown (chibar2 (01), 0.00; Prob > chibar2, 1.0000), and based on that, the Prob > chi2 value did not exceed 5%, which shows that heteroskedasticity is present in the data. According to the findings of heteroskedasticity test (chi2 (1), 17.38; Prob > chibar2, 0.000), then, the findings verified the existence of the heteroskedasticity issue. In this work, the model was estimated using OLS regression, which produces robust standard errors.

#### 4.2. Results of the regression for board of directors, FBDR and performance — Direct and non-direct (moderator)

This section focuses on the regression findings for BOD, FBDR, and performance, both direct and indirect (moderator), as supplied by Models 1 and 2. The direct correlation between BOD and performance is investigated in the first model. This test is comparable to Goel et al. (2022).

There is a negative correlation between the performance of the KSA financial firms and BOSE and BOIER, according to the data. Significant improvements to FP have been made by BOAFE and FBDR. BOCT and BOMG work alright, but that's about it. In an effort to deactivate FBDR, Model 2 was implemented. An interaction effect or moderation occurs when the value of a third independent variable, the moderator variable, alters the connection between two sets of dependent and independent variables. Moderating or interacting variables alter the relationship between one independent variable and the dependent variable. According to Cabrera-Suárez and Martín-Santana (2015), in multiple regression, the impact of the moderator variable is reflected by adding compound variables to the regression equations, which are obtained by multiplying the independent variable by the moderator variable. There may be an improvement in FP if boards with more women on them are more likely to check (Adams & Ferreira, 2009). Positive moderators were also found by Terjesen et al. (2016), who analyzed women board moderators independently. Better research is needed to bridge BOD and company performance. This study investigates if women on boards affect corporate effectiveness. According to Table 5, business performance is positively and significantly correlated with FBDR \* BOSE and BOIER interaction. Conversely, FP is unrelated to FBDR \* BOMG / BOAFE interaction. Finally, the FBDR \* BOCT combination negatively impacts FP quite much.

**Table 5.** Results of the regression for BOD, FBDR and performance — Direct and non-direct (moderator)

Variable	Model 1		Model 2	
	Coefficient	t-statistics	Coefficient	t-statistics
BOSE	-0.025***	-2.67	-0.033***	-3.1
BOIER	-0.120***	-2.81	-0.135***	-2.83
BOMG	0.007	1.07	0.008	1.14
BOCT	0.271	0.87	0.566	1.38
BOAFE	0.242***	3.27	0.233***	2.71
FBDR	0.022*	1.71	0.495	1.48
FBDR * BOSE	-	-	0.033**	2.12
FBDR * BOIER	-	-	0.113*	1.58
FBDR * BOMG	-	-	0.002	0.15
FBDR * BOCT	-	-	-0.907*	-1.76
FBDR * BOAFE	-	-	-0.015	-0.11
FSL	-0.002	-0.17	0.000	0.03
LVGE	-0.375***	-4.27	-0.386***	-4.31
_cons	0.376*	1.61	0.181	0.57
Prob > F	0.000		0.000	
R-squared	0.173		0.184	

Note: Table 1 defines every variable; \*  $p < 0.10$ , \*\*  $p < 0.05$  and \*\*\*  $p < 0.01$  denote significance levels, respectively.

**4.3. Alternative proxy measures of board of directors' attributes**

The robustness analysis of our primary regression results is also performed using several proxy measures of the qualities of BOD, including

$$ROE_{it} = \beta_0 + \beta_1 BOSE_{it} + \beta_2 BODNONEX_{it} + \beta_3 BOMG_{it} + \beta_4 BOCT_{it} + \beta_5 BoardACEX_{it} + \beta_6 FBDR_{it} + \beta_7 FSL_{it} + \beta_8 LVGE_{it} + error\ terms \tag{3}$$

$$ROE_{it} = \beta_0 + \beta_1 BOSE_{it} + \beta_2 BODNONEX_{it} + \beta_3 BOMG_{it} + \beta_4 BOCT_{it} + \beta_5 BoardACEX_{it} + \beta_6 FBDR_{it} + \beta_7 FBDR * BOSE_{it} + \beta_8 FBDR * BODNONEX_{it} + \beta_9 FBDR * BOMG_{it} + \beta_{10} FBDR * BOCT_{it} + \beta_{11} FBDR * BoardACEX_{it} + \beta_{12} FSL_{it} + \beta_{13} LVGE_{it} + error\ terms \tag{4}$$

First non-executive board proxy measure, *BODNONEX*, compares the number of non-executive boards to the size of the boards. Our second proxied indicator of the board's background in finance and accounting is called *BoardACEX*. It indicates to BOD how many members have financial or accounting experience. From a computational perspective, these data differ significantly from one another. Yet, the results are similar in the two models shown in Table 5. It therefore came to the conclusion that our findings hold up well under a wide range of estimations. Each of the relevant variables is hence dependable. In light of the previously described results, this study provides an overall viewpoint that enriches the current dialogue and sheds light on

the number of non-executive board members and the number of board members with accounting and financial experience. In light of the previously specified goals, it consequently made use of the following regression models:

the connection between a company's performance and its BOD' qualities.

Table 6 displays the results of OLS regression analysis. The data indicates a significant negative correlation between the corporation's performance and the regression coefficient for *BODNONEX* (p-value < 0.05), hence providing no support for *H1*. Furthermore, it finds that there is a significant positive correlation between the regression coefficient *BoardACEX* and FP (p-value < 0.05), supporting *H5*. Comparing our main findings to other indicators of the traits of BOD, they generally stand up well. Furthermore, Table 5 illustrates that the moderate effect of *FBDR* had an equivalent effect as the main findings.

**Table 6.** Results of the regression for alternative proxy measures, FBDR and performance — Direct and non-direct (moderator)

Variable	Model 3		Model 4	
	Coefficient	t-statistics	Coefficient	t-statistics
<i>BOSE</i>	-0.029***	-3.00	-0.037***	-3.21
<i>BODNONEX</i>	-0.013**	-2.38	-0.016***	-2.61
<i>BOMG</i>	0.007	1.05	0.009	1.17
<i>BOCT</i>	0.312	0.99	0.632*	1.53
<i>BoardACEX</i>	0.025***	3.1	0.024***	2.64
<i>FBDR</i>	0.021*	1.64	0.597*	1.68
<i>FBDR * BOSE</i>	-	-	0.027*	1.92
<i>FBDR * BODNONEX</i>	-	-	0.015*	1.62
<i>FBDR * BOMG</i>	-	-	0.002	0.11
<i>FBDR * BOCT</i>	-	-	-0.965*	-1.86
<i>FBDR * BoardACEX</i>	-	-	-0.001	-0.08
<i>FSL</i>	-0.002	-0.16	0.001	0.08
<i>LVGE</i>	-0.383***	-4.36	-0.392***	-4.38
<i>_cons</i>	0.383*	1.69	0.159	0.51
Prob > F	0.000		0.0000	
R-squared	0.1684		0.1806	

Note: Table 1 defines every variable; \* p < 0.10, \*\*p < 0.05 and \*\*\* p < 0.01 denote significance levels, respectively.

**4.4. Additional test**

According to Kumar and Zatonni (2018), Minichilli et al. (2009) and Zona and Zatonni (2007) are some of the empirical researches that provided evidence for the hypothesis stressing that both board demographics and practices may increase board effectiveness in fulfilling its functions. On the other hand, it was suggested in (Fama & Jensen, 1983a) that combining the authority to make decisions that are managed and those that are controlled reduces the efficacy of a board in monitoring the CEO, which may result in a decline in the performance of the company.

This research, similar to prior works (Al-Jaifi et al., 2017; AlQadasi & Abidin, 2018; Srinidhi et al., 2014), employs an aggregate assessment of a company's governance processes in order to

determine the efficiency of CG. One school of thought contends that making use of a composite of structural variables rather than their separate components lowers the likelihood of making errors in the individual structural components (Srinidhi et al., 2014). O'Sullivan et al. (2008) draws the conclusion that doing an aggregate measurement rather than an individual measurement has a more significant influence. In light of this, the present research makes use of a composite measure to assess the effectiveness of the company's BOD (*BOARDEFFE*).

The *BOARDEFFE* variable is a score that is calculated by combining the results of six different variables that pertain to the characteristics of boards of directors. The primary goal of merging many governance factors is to provide an all-encompassing indicator of the governance

practices used by the company as a whole. It dichotomized the six components by assigning a value of "1" to each one if the company in question had a governance characteristic that was higher than the median of the other companies operating in the same industry and during the same year. In the end, it arrived at the final score for the *BOARDEFFE* by adding together the points earned by each of the six subcomponents (*BOSEif*, *BODNONEXif*, *BOMGif*, *BOCTif*, *BoardACEXif*, and *BODINDif*). The values range from 0 to 10, with 10 representing the greatest efficacy of BOD and 0 signifying the least effective BOD. As a result, on the basis of the aforementioned goals, it used the regression models as follows:

$$ROE_{it} = \beta_0 + \beta_1 BOARDEFFE_{it} + \beta_2 FBDR_{it} + \beta_3 FSL_{it} + \beta_4 LVGE_{it} + error\ terms \quad (5)$$

$$ROE_{it} = \beta_0 + \beta_1 BOARDEFFE_{it} + \beta_2 FBDR * BOARDEFFE_{it} + \beta_3 FBDR_{it} + \beta_4 FSL_{it} + \beta_5 LVGE_{it} + error\ terms \quad (6)$$

It concludes that *BOARDEFFE* and company performance are positively and significantly correlated. This conclusion is supported by the results of a regression analysis that looked at the performance of BOD, *FBDR*, and direct and indirect methods (the moderator). Furthermore, the study's findings indicate that the financial performance of the organization is significantly impacted by the integration of *FBDR \* BOARDEFFE*.

**Table 7.** Results of the regression for effectiveness of BOD' attributes, *FBDR* and performance — Direct and non-direct (moderator)

Variable	Model 5		Model 6	
	Coefficient	t-statistics	Coefficient	t-statistics
<i>BOARDEFFE</i>	0.015*	1.750	0.027***	2.900
<i>FBDR * BOARDEFFE</i>	-	-	-0.046***	-2.950
<i>FBDR</i>	0.016	1.040	0.156***	3.130
<i>FSL</i>	-0.003	-0.230	-0.002	-0.220
<i>LVGE</i>	-0.433***	-6.240	-0.434***	-6.320
_cons	0.506***	7.600	0.467***	6.960
Prob > F	0.000		0.000	
R-squared	0.141		0.161	
Adj R-squared	0.131		0.150	

Note: Table 1 defines every variable; \*  $p < 0.10$ , \*\*  $p < 0.05$  and \*\*\*  $p < 0.01$  denote significance levels, respectively.

## 5. DISCUSSION OF RESULTS

In order to provide more depth to the findings, it focused on the explanation of the outcomes of all of the models presented in this part (Model 1 to Model 6).

As seen in Tables 5 and 6 (Model 1–Model 4), and according to our investigation, a company's BOD' size and performance are negatively correlated. The findings are consistent with the hypothesis, as shown in Tables 5 and 6, which means that *H1* was supported by the findings. The findings are consistent with other research that looked at this association in the KSA (Altass, 2022; Buallay et al., 2017). The conclusion states that smaller boards are often more cohesive and have great communication to make the best choice quickly, which may lead to board members effectively overseeing management.

In addition, Tables 5 and 6 (Model 1–Model 4) show that non-executive members of BOD were hypothesized to have a positive, significant relationship with performance. The findings are not consistent with the hypothesis, as shown by Tables 5 and 6. This means that *H2* is not supported by the findings. The findings are consistent with other studies that looked at this association in the KSA (Altass, 2022; Hamdan & Al Mubarak, 2017). Although it was established that BOD' independence has a favourable impact, our investigation showed that there is a negative correlation. This suggests that it is unlikely that the number of independent board members would be selected in a way that will enable them to carry out their duties effectively. Additionally, the committees charged with this task may extend their goodwill in the appointment of independent directors. To secure the selection of competent independent directors to support

the company's objectives, policymakers must ensure that the independents are chosen based on strict standards.

Additionally, Tables 5 and 6 (Model 1–Model 4) support the research hypothesized that *BOMG* had a positively significant correlation with performance. The conclusion is not consistent with the hypothesis, as shown by the data in Tables 5 and 6. This indicates that the evidence does not support *H3*. The findings match up with other research that looked at this link between the KSA and other countries (Al-Matari et al., 2022). It was claimed that *BOMG* is a crucial medium for managers to learn specific information about the business, and that by participating in these meetings, managers can carry out their supervisory duties, despite the fact that our study found no connection between *BOMG* and performance. This shows that the agenda was not implemented with consideration for the attendees, which aids the business in continually enhancing performance. The company's decision-makers must thus keep an eye on the meeting agendas with the choices made and constantly work to put the suggestions into practice.

Moreover, as seen in Tables 5 and 6 (Model 1–Model 4), the study found a positive and statistically significant relationship between *BOCT* and performance. The conclusion differs from the hypothesis in light of the findings shown in Table 5. Thus, *H4* is not supported by the data. The outcome is well known from earlier research that looked at this association in the KSA (Al-Matari et al., 2022). Even though *BOMG* happen often, this conclusion may be linked to the meetings' ineffectiveness. Weak decision-making on the important matters that affects

the organizational orientation as a whole might be seen as a sign of ineffectiveness.

Additionally, Tables 5 and 6 (Model 1-Model 4) support the research hypothesis that BOD' accounting and financial experience had a positively significant relationship with performance. The findings are consistent with the hypothesis, as seen in Tables 5 and 6. This indicates that *H5* is supported by the data. The findings are consistent with other research papers that looked at this link among the KSA (Al-Matari et al., 2022). Barney (1991) bolsters the finding by asserting that directors with prior organizational experience possess intangible assets, such as tacit knowledge that is hard to replicate and might provide them with a competitive edge. By choosing members with experience, the board's strategic decision-making process is often less biased inside and encompasses a wider range of perspectives and interpretations.

Tables 5 and 6 (Model 1-Model 4) also show support the research hypothesis of a strong positive correlation between performance and having women on BOD. According to the findings shown in Tables 5 and 6, the conclusion supports the hypothesis. In other words, the *H6* is supported by our findings. The outcome is well-known from earlier research that looked at this link in the KSA (Shukeri & Alfordy, 2022). The findings are corroborated by Gul et al. (2011), who claimed that board gender diversity may serve as an additional governance tool that can benefit organizations with poor governance. As shown by Weck et al. (2022), once women officially take a leadership role, it is simpler for them to overcome gendered status prejudices and prove their value to others by contributing to distinctive task accomplishments.

Furthermore, our study hypothesis was that the relationship between board qualities and company performance will be moderated by the participation of women on boards of directors, as shown in Tables 5 and 6 (Model 1-Model 4). Based on the data shown in Tables 5 and 6, it can be concluded that the hypothesis was true. This indicates that the hypothesis *H7* is only partially supported by the evidence. The results backed by (Kumar & Zattoni, 2016) indicate that adding *FBDR* members modifies internal procedures as well as task performance. Furthermore, the presence of women on boards of directors may lead to an increased level of involvement on such boards in terms of strategic advice and development. This is due to the fact that when boards comprise women, they become more adept at handling the complexity and uncertainties that surround company strategy choices (Ararat & Yurtoglu, 2021; Fajarwati & Witiastuti, 2022).

In addition, the findings of the research are shown in Table 7 (Model 5), which indicates that there is a positively significant correlation between effectiveness of BOD attributes and performance. This conclusion is comparable to those found in other research, which suggested that improvements in board composition and procedures might increase a board's efficacy in carrying out its responsibilities (Kumar & Zattoni, 2018; Minichilli et al., 2009). In addition, the mixture of the variables will result in their coming together to conceal the weakness if it happens, which will contribute to an improvement in

the company's performance in the event that the combination of these variables occurs.

The study findings, presented in Table 7 (Model 6), demonstrate a substantial correlation between performance and the combined impact of BOD' qualities' efficacy and the proportion of women sitting on these boards. This result gives credence to the theory that the process of linking the variables of BOD with the presence of women helps to share the decision-making process. This, in turn, creates an environment in which ideas can be honed and information can be traded between the sexes, which ultimately contributes to the formation of an intelligent choice. Additionally, the process of having women on a company's BOD helps to diversify experiences and skills, which helps to take decisions that benefit the company. This enhances confidence in the decisions taken that serve the goals of the company.

## 6. CONCLUSION

This research aims to explore the link between a company's success and the characteristics of its BOD. Furthermore, this study looks at the function that women play in this relationship. Additionally, the study looks into the relationship between performance and the efficacy of boards of directors. The data is compiled using the annual reports of financial businesses that have operations in the KSA from 2014 to 2022. The study used regression analysis to investigate the potential influence of BOD qualities on performance. This study used OLS regression to evaluate the moderating impact of *FBDR* members on the association between BOD attributes and performance. The KSA served as the research site for this study. Furthermore, our results, which combine novel data with attentional tests, corroborate those of the previous studies. Ultimately, an efficacy assessment of BOD was conducted. This study comes to the unfavorable and significant conclusion that the size of the board and the proportion of non-executives on the board have an impact. Having women on the board who are proficient in accounting and finance, nevertheless, has a positive and noteworthy effect. Furthermore, the company's performance is positively and marginally impacted by *BOMG* and board dedication. Using other metrics to examine the relationship between BOD attributes, this study verifies all of the major conclusions. This study also found that women's participation somewhat mitigated the relationship between company performance and characteristics of BOD. Furthermore, a strong and favorable correlation between board effectiveness and company performance is shown in this study. The interplay between *FBDR \* BOARDEFFE* and *FP* is found to be negatively and significantly correlated.

The conducted research investigations reveal that the characteristics of BOD may significantly improve the performance and achievements of companies. Nevertheless, there is a divergence of opinions regarding the precise impact that these characteristics may exert on a company's success. Nevertheless, fostering a moderate degree of diversity among team members can provide a favorable atmosphere for creating fresh perspectives and improving problem-solving capabilities. Hence, policymakers and managers

should take this element into consideration. Consequently, the inclusion of board members with moderate diversity can help organizations achieve optimal performance while mitigating the potential conflicts associated with very diverse boards (Marquez-Cardenas et al., 2022). Business firms can flourish in settings characterized by diverse perspectives, a capacity for innovative thinking, extensive social connections, and a reasonable level of opposing ideas. Multiple measures must also yield rigorous findings and reliable insights to have significant consequences for corporate success. The present research employed many metrics of board diversity to accurately assess the features of BOD and improve the analytical process. This research examines the potential impact of the BOD's qualities on a company's performance. The study suggests that the performance of a corporation is influenced by contextual variables such as the qualities of and the level of female representation on the board. These aspects synergistically ensure a firm's performance aligns with corporate best practices and enhances overall performance. Furthermore, this paper delves into the implementation of CG in the context of a developing nation. Moreover, the results have implications for the necessity of strengthening corporate regulations (SACMA, 2019) to ensure openness in all publicly traded companies. The presence of women in policy-making roles is essential as it promotes a variety of perspectives, improves the quality of decision-making, and enhances the overall effectiveness of

the organization. The main issue addressed in this study is the underrepresentation of women on boards of directors. To address this, decision-makers should actively increase women's involvement and empower them to take on leadership roles in order to contribute to the organization's goals.

This study has a shortcoming that might potentially be addressed by further inquiry. It is crucial to carefully consider the future role of BOD and the representation of women on the board. Furthermore, it is essential to examine the relationship between the duties of BOD the presence of women on the board, especially in the context of developing countries. Further inquiries into comparative comparisons across other sectors, such as finance and non-finance, should give priority to scrutinizing the role of BOD, the representation of women on the board, and the overall effectiveness of the board. Comprehensive future research should cover all facets of CG, including BOD, audit committees, ownership structures, governance committees, compensation committees, and other pertinent elements. In the future, it will be crucial to analyze the correlation between the role of BOD and the success of the firm. This analysis should include the integration of supplementary factors such as moderators and mediators. These features pertain to the proficiency levels of the board members and the incorporation of other nationalities and political perspectives.

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