

Female Directors and Firm Performance: Evidence from Saudi Arabia

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Abstract

This study examines the relationship between female board representation and performance of Saudi nonfinancial listed firms. Using a sample of 350 firms over the period 2016 to 2019, the study finds that neither female board representation nor the attributes of the women in the sample (qualification, experience, and independence) are significantly related to firm performance. The current study also finds that the diligence of female directors does not modify the relationship between their board representation and the performance of Saudi nonfinancial listed firms. Considering the fact that no Saudi nonfinancial listed firm has more than two female members on its board, the result of this study suggests the importance of having a critical mass of female board directors in order to make a greater contribution to firm performance. Furthermore, current female board representation supports the notion of tokenism in Saudi businesses.

Keywords: female board representation, performance, Saudi nonfinancial listed firms.

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1. Introduction

The effect of women in company boardrooms has received significant attention from both academics and policy makers in recent years. In many countries, quotas are applied to increase the share of women in the boardrooms. Norway was the first country to adopt a quota by requiring that 40 per cent of board seats should be assigned to women; Norway's example has been followed by other EU countries including France, Germany, Italy, and Belgium (Adams and Ferreira, 2009; Green and Homroy, 2018). The increasing consideration given to this issue reflects the view that the presence of women directors improves boards' effectiveness and, in turn, company performance. In fact, most studies of the relationship between female board representation and performance have documented that female directors have a positive effect on board and company performance (Erhardt, Werbel, and Shrader, 2003; Green and Homroy, 2018; Campbell, Minguez-Vera, 2008; Post and Byron, 2015; Terjesen, Couto, and Francisco, 2016). It has been found that female directors can provide fruitful debate on the boards through sharing new ideas, adding different perspectives on the issues being debated, and finding solutions to the problems in a creative manner (Bennouri, Chitoui, Nagati, and Nekhili, 2018; Milliken and Martins, 1996; Post and Byron, 2015). Female directors also are more effective in monitoring management actions than their male counterparts (Hars and Granli, 2019; Post and Byron, 2015), and often more qualified in carrying out their work (Bennouri et al., 2018; Nekhili and Gatfaoui, 2013). Further, adding experienced female directors to the board could lead to the creation of heterogeneous groups of members with different fields of knowledge who able to understand the environments in which firms work and help them to generate profit from their investment (Post and Byron, 2015). Moreover, female board directors tend to provide assurance of their ability to succeed in boardrooms through attending more board meetings than their male counterparts, participating in key board committees, and carrying out the responsibilities they are assigned. They therefore enhance the effectiveness of the board and help firms achieve better performance (Rose, 2007).

The view that female board representation contributes positively to company performance is based on the argument that women, typically, are more conscientious in carrying out their monitoring responsibilities than men (Post and Byron, 2015; Campbell, Minguez-Vera, 2008). In this context, Post and Byron (2015) argued that women tend to strictly adhere to instructions and are more concerned about ensuring that responsibilities are carried out in line with standards, and are more likely to report cases if criteria are not met. In addition, female directors have been found to ask more questions about the cases being discussed (Terjesen et al., 2016), so they are more effective in disclosing faults, and hence improving firm's outcomes. For example, if female directors sit on the audit committee, they would help in detecting and preventing fraud, resulting in improved financial reporting quality (Bennouri et al., 2018). In fact, since many female directors come from outside the company, they would be not be related to the management personnel and would be less hesitant to report all material cases, including faults of the management itself.

The literature has documented that female directors who are qualified in terms of the level of education, experience, independence, and other attributes, would be more capable of detecting and preventing operational shortcomings and therefore improving firm performance (Bennouri et al., 2018; Comi, Grasseni, Origo, and Pagani, 2020). In other words, qualified female directors would contribute to company performance because they possess the knowledge and skill needed to perform their responsibilities in monitoring management activities.

Independence is another attribute that enables female directors to disclose faults, even they are related to the management itself.

On the other hand, there is contrary view contending that the appointment of female directors does not contribute to the board activities; instead this view holds that such appointments could actually reduce the board effectiveness and firm's performance (Adams and Ferreira, 2009; Fernandez, Jimenez, and Ortiz, 2016). This view suggests that the heterogeneous board composition reduces the motivation of board members to work together as a team, leading to a split into two groups, each of which has an agenda to remove the members who have different views. Such a situation could result in loss of opportunities for success, as it leads to wasted time, especially in the time taken to make good decisions (Adams, Haan, Terjesen, and Ees, 2015).

A third view on the issue of the impact of female board representation on the performance suggests that such representation has no impact on corporate performance (Ararat, Aksu, Cetin, 2015; Rose, 2007). These researchers argue that the presence of challenges, described as barriers or glass ceilings, face women and prevent them from effectively carrying out their responsibilities of monitoring and oversight of management activities. These barriers include such matters as withholding from female directors' access to documents or dealing with critical issues, and assigning them to immaterial tasks (Adams et al., 2015; Comi et al., 2020; Elstad and Ladegard, 2012). In other words, even though female directors are qualified, they might not be able to contribute effectively to firm performance due to pre-existing institutional factors within society, such as gender inequality and the predominance of masculine norms. These factors explain why female directors are not able to contribute to effective board and company performance.

This last view is based on the notion of tokenism, which proposes that female directors will not be able to contribute to the board's effectiveness unless there are at least three women on a firm's board of directors. This view is based on the argument that the presence of a critical mass of female directors (i.e. having three female members or more on the board of directors) could create the kind of cooperation, support, comfort, and freedom from intervention of controlling members that could result in an improvement of female directors' effectiveness in monitoring and overseeing management activities (Bennouri et al., 2018; Elstad and Ladegard, 2012).

In the case of Saudi Arabia, the boards of most Saudi listed firms are controlled by small groups of directors who represent an elite group in each firm. This kind of centralized structure is associated with an adverse impact on monitoring activities. In recent years, Saudi policy makers have adopted many initiatives to increase the share of women in the workforce and in top positions. One of these initiatives is to increase the proportion of women in specific industries that achieve higher level of growth, such as tourism and retail activities. As part of these efforts to support women, the government also offers a wide scope of training programs that aims to improve the skills of women in aspects of leadership. Together, the objective of these initiatives was to increase the share of women in the workforce to as much as 25% by 2020 (Vision 2030.). This initiative of Saudi government could also lead to a diversity in board composition, making boards more into heterogeneous, taking into consideration the fact that an increase in the share of women in the workforce is usually associated with an increase in female board representation (Tyrowicz, Terjesen, and Mazurek, 2020). Whether this change could affect the performance of Saudi non-financial listed firms is an important issue to investigate. Thus, this study is motivated by a recognition of the importance of female board representation in improving the effectiveness of the board and the company. Importantly, it also seeks to add new insights on this issue from a developing country (Saudi Arabia).

However, Saudi Arabia is one of a number of countries whose social norms espouse male-female inequality. In this context, female directors face discrimination bias as they are seen as unqualified members, and are therefore excluded from boards of directors unless they can provide clear evidence of their effectiveness. In this context, the literature has indicted that the impact of female directors on the board is achieved only when female directors can effectively join in the full meeting of the board and carry out responsibilities as members of key board committees (Adams and Ferreira, 2009). This implies that their contribution to board effectiveness is dependent on the personal diligence of a female director in attending meetings and participating in the work of key board committees. Thus, a female director's diligence can be considered an important factor that modifies the relationship between female board representation and firm performance. Hence, the second objective of this study is to investigate whether the relationship between female board representation and firm performance is dependent on both female members' attendance behavior and participation in committees as indicators of female directors' diligence.

While relationships between female board representation and firm performance have been documented in developed countries, there is no evidence related to this issue in the Saudi corporate sector. Taking into consideration the fact that female board representation may well function differently in countries with higher levels of male-female inequality social norms, there is a need to fill this gap and investigate whether female board representation contributes positively to the performance of Saudi nonfinancial listed firms.

The current study uses a sample that includes all 350 Saudi nonfinancial listed firms over the period covering 2016-2019. Two models are developed to test the study's hypotheses. The first model examines the relationship between female board representation and their attributes (i.e. level of education, experience, and independence) with firm performance. The second model examines the moderating effect of female directors' diligence on the

relationship between female board representation and firm performance. Two statistical tests are used to capture the within- and between-firm variance. The results reveal that neither female board representation nor the attributes of female members (qualifications, experience, and independence) are significantly related to performance. In addition, the results show that the diligence of female directors does not modify the relationship between their board representation and the performance of the Saudi listed firms included in the sample. This study could be interpreted as being in line with the notion of tokenism, since the majority of Saudi nonfinancial listed firms include only one female director in their board (82% of the sample) and none of the boards of sample of listed firms contain three or more female directors. According to tokenism theory, female directors would not be able to contribute to board effectiveness and firm performance unless there are at least three female members on the board of directors. This view argues that a critical mass of female directors (i.e. three female members or more on the board of directors) is needed to create the kind of cooperation, support, comfort, and freedom from intervention by controlling (male) members that could improve the effectiveness of female directors in monitoring and overseeing management activities (Bennouri et al., 2018; Elstad and Ladegard, 2012), leading to enhanced company performance.

The results of this study contribute to the literature in a number of aspects. The study extends research on the relationship between female board representation and firm performance by examining this issue in Saudi Arabia, a country with male-female inequality norms. With recent data, covering the years 2016-2019, this study provides evidence supporting tokenism theory, leading to conclude that female board representation, as measured by a single female director on the board, is not related to company performance. From a practical point view, it is recommended that policy makers in Saudi Arabia formulate specific rules that lead to an improved work environment for female directors, considering the fact that an increase in the share of women in the workforce has been shown to increase female board representation in the same ratio (Tyrowicz, Terjesen, and Mazurek, 2020). Policy makers are also recommended to improve the effectiveness of female board members through training and education programs specifically related to business field.

2. Literature and Hypothesis Development

Boards of directors are responsible for overseeing and monitoring management activities to ensure that these activities are carried out consistent with shareholders' objectives. In this regard, the board of directors is responsible for designing and maintaining an effective monitoring system that help detect and prevent shortcomings related to operations, to improve the efficiency of management entities and, in turn, enhance corporate performance. Indeed, an effective monitoring system could mitigate the conflict that might arise between management and shareholders due to divergent goals of both sides (Jensen and Meckling, 1976). Female directors have been found to be more capable in performing monitoring functions than their male counterparts (Hars and Granli, 2019; Post and Byron, 2015), and they can thus provide firms with assurance on implementing their plans and on the potential areas of risk that need to be improved, thereby achieving corporate goals.

Several prior studies have documented that female directors play a significant role in improving a firm's performance (Campbell, Minguez-Vera, 2008; Erhardt, Werbel, and Shrader, 2003; Green and Homroy, 2018; Post and Byron, 2015; Terjesen, Couto, and Francisco, 2016) suggesting the positive influence of female directors on performance. In this view, female directors contribute significantly to the monitoring function of the board and in turn to firm performance. As female directors seem to be more concerned about the details of issues being discussed, they would greatly add value to a reporting system through providing accurate and adequate reports, thereby contributing to an improved decision-making process. In this regard, Post and Byron (2015) noted that the appointment of female directors is related to an increase in the amount of information available to the board.

Indeed, it has been suggested that female board representation could create kind of competition in which women are incentivized to prove their talents against efforts to exclude them from holding the highest positions (Erhardt et al., 2003; Rose, 2007). In this regard, prior studies have recorded that female directors prepare a preliminary reading of the issues that are anticipated to be discussed before they join a meeting (Terjesen, Sealy, and Singh, 2009). In other words, they would not offer their comments and suggestions unless they already possess an overall assessment on the issues being discussed and after obtaining the required information from all relevant resources. As a result, they contribute to the board's effectiveness. It has been noted that when female directors are added to the boardroom, the impact on the board's effectiveness increases as a result of an enhanced questioning culture in the boardroom (Erhardt, et al., 2003; Srinidhi, Sun, Zhang, and Chen, 2020). In other words, a board composed of different and varied members would be more effective in questioning management than a homogeneous board composed of members belonging to single group (e.g. all males). This means that with more female board representation, the decision-making processes can be based on sharing ideas in an open discussion where all members can express their opinions in free atmosphere, without consideration of relationship loyalties or boss-centric norms.

Similarly, as women are used to adopting conciliatory positions on issues, rather than imposing their opinion on others (Terjesen et al., 2009), they work well in negotiation practices in decision-making.

On the other hand, as women are more risk-averse than men (Comi, et al., 2020; Kirsch, 2018), they tend to be more thorough in ensuring that standards of work are strictly met, resulting in enhanced monitoring of management actions (Post and Byron, 2015). In addition, the literature has documented that having more female directors on the board is a good indicator that a firm is more likely to protect the interest of shareholders, because female directors are seen as good monitors of management actions; conversely, a board of directors with a low percentage or no female directors indicates that there is more likelihood of intervention by management in the firm to the detriment of shareholders (Terjesen et al., 2016). Kirsch (2018), too, has argued that female directors are more diligent in their work than male directors, and provide good services in monitoring management.

Studies have also found that the presence of female directors on the board not only improves the financial performance of firms, but also improves their social performance, considering that female directors offer better social responsibilities' services (Elstad and Ladegard, 2012; Post and Byron, 2015). Such social practices can improve a firm's value they give rise to a feeling in the community that the firm is part of their society and would be more concerned about their problems and react positively to their needs.

In sum, numerous studies have claimed that the presence of female directors helps company boards to maintain better performance: they provide greater assurance of the effectiveness of management in using the firm's resources and of achieving the goals of shareholders.

In contrast to this positive view of the relationship between female board representation and performance, there is an alternative view proposing that, in fact, female directors contribute negatively to firm's performance (Adams and Ferreira, 2009; Bennouri et al., 2018). Some studies have provided some reasons related to the gender-mixed composition of boards to explain the adverse impact of female board representation. These include a lack of qualified female directors (Bennouri et al., 2018; Comi, et al., 2020), and a lack of good connections between male and female directors (Adams and Ferreira, 2009; Terjesen, et al., 2009). However, it has been noted that, compared to the ease of social relationships among male directors, it is more difficult to establish social relationships with female directors outside the work area; thus, any relationship between the members of the board would be based on official channels and work-based activities. This situation would be especially true in the case of a closed society, like Saudi Arabia. With this kind of setting, regarding the board as a single unit is not viable, and such boards may experience issues of discriminatory behavior or a less harmonious working atmosphere, which could reduce the board's effectiveness. Further, heterogeneous boards might suffer from other biases that reduce their effectiveness, such as over-monitoring practices or delays in making decisions.

A third view of the relationship between female board representation and performance proposes that female board representation has no relationship to company performance (Ararat et al., 2015; Comi et al., 2020; Rose, 2007). This view refers to situations where female board representation is imposed by authoritative bodies through quotas that require assigning a certain percentage of seats on the board to women in order to increase the share of female representation on the board. In this situation, female directors might not be qualified for the positions held; rather they are appointed merely to comply with the regulations. Even if the female directors are qualified, they might be less effective in improving a firm's performance due to the presence of institutional factors such as discriminatory practices against female directors (i.e. preventing female directors from access to documents and dealing with critical issues, or assigning them to unimportant tasks (Adams et al., 2015; Comi et al., 2020; Elstad and Ladegard, 2012). In addition, the reduced effectiveness of female directors might be attributed to a higher rate of turnover of female directors and absenteeism due to factors competing for their time, including children and home needs (Campbell and Mínguez-Vera, 2008; Milliken and Martins, 1996). This last view is related to the theory of tokenism, which proposes that the presence of female directors would not be able to contribute to board effectiveness and firm performance unless their number exceeded three members on the board of directors. This view is based on the argument that a critical mass of female directors (i.e. having three female members or more on the board of directors could create the kind of cooperation, support, comfort, and freedom from intervention of controlling members, that could improve female directors' effectiveness in monitoring and oversighting management activities (Bennouri et al., 2018; Elstad and Ladegard, 2012).

In sum, there are mixed views and research results concerning the relationship between female board representation and performance. In the Saudi corporate setting, while the Saudi government has made some efforts to increase female participation in the workforces and their representation in top positions, males' directors still dominate the boards of directors. Thus, the relationship between female board representation and performance remains ambiguous in the case of Saudi listed firms.

Based on the above discussion, the current study anticipates that there is a relationship between female board representation and the performance of Saudi nonfinancial listed firms but it does not predict the direction of such a relationship. Hence, the first hypothesis of this study is developed in alternative form as follows:

H1: There is a relationship between female board representation and performance of Saudi nonfinancial listed firms.

2.1 Individual attributes of female directors

Literature on the relationship between female board representation and performance has also investigated the effect of individual attributes of female directors, such as their qualifications, experience, and independence on the performance of firms. From the perspective of resource dependence theory, firms choose members of the boards of directors who can perform their responsibilities in an effective manner (regardless of their gender, race or other considerations); therefore, the boards of directors would be composed of a pool of members having varied and different skills and knowledge. (Comi et al., 2020; Terjesen et al., 2016). In an ideal situation, female directors would have adequate qualifications and sufficient experience that could enable them to provide firms with key resources related to their educational and professional background leading to enhanced efficiency of decision making and firms' performance. Moreover, they contribute to board effectiveness when they are independent, as they are better able to provide rigorous monitoring activities. The consulting and monitoring activities of qualified, experienced female directors would lead to better performance by the firm.

Some studies have found that, on average, female directors were better qualified than their male counterparts in possessing higher educational degrees, which indicates that female directors are able to provide the board of directors with adequate knowledge and skills that help them to achieve their goals (Nekhili and Gatfaoui, 2013; Post and Byron, 2015). Specifically, if female directors have at least a university degree in business, they would possess the knowledge needed to provide valuable work in monitoring management activities. Moreover, qualified female directors are more able to provide the boards of directors with knowledge that helps firms to react effectively to new developments in the business environment and to identify potential areas for improving the performance (Bennouri et al., 2018). Bennouri et al. (2018) also noted that female directors who have high educational degrees also have other advantageous attributes such as independent thinking, patience in doing their work, and creativity in solving problems that can also contribute to board productivity. In addition, it is expected that qualified female directors are more capable of reviewing the entities' reports and making fruitful recommendations, depending on their area of competency.

In this regard, Nekhili and Gatfaoui (2013) found that if female directors have achieved a higher educational level and possess a formal business background, they would have more opportunities to be selected as board members, which implies that they would add value to the board's effectiveness and firm performance. Similarly, in their study Bennouri et al. (2018) investigated the impact of educational level, among other attributes, on corporate performance. They found that the educational level of female directors was positively related to performance as measured by an accounting-based measurement. This, again, indicates that female directors possessing higher educational qualifications could make a greater contribution to firm performance.

However, although female directors might be well-qualified in terms of having higher educational qualifications, their contributions to board activities may be less than optimal due to discriminatory practices that could hinder their effectiveness in improving performance. These include preventing qualified female directors from access to needed information or assigning them to inconsequential tasks (Adams et al., 2015; Comi et al., 2020; Elstad and Ladegard, 2012).

In sum, the qualification of female directors measured by level of education provides a useful indicator of their ability to add value to the board's outputs and corporate performance.

In the case of Saudi Arabia, female education has been the focus of government attention through a new program, entitled "The Custodian of the Two Holy Mosques Overseas Scholarship Program", that aims to educate both male and female Saudis in the best universities around the world. In addition to this program, there is new movement under the Saudi Vision 2030 initiative to develop new programs available to female students at Saudi universities. It is expected that females who graduate from these programs are qualified and thereby in demand by Saudi firms to work in top positions, including as members of the board of directors.

Another important attribute of female directors is an independence. In fact, corporate governance regulations such as the Sarbanes-Oxley Act require that independent directors should constitute the majority of the board of directors (SOX, 2002). These regulations place greater importance on independent directors' role in monitoring management actions. Responding to these regulations, firms tend to appoint more female directors to the board. When female directors are appointed from outside the firms, they are more likely to be free from any intervention by management, and thus they would be able to better perform their role in monitoring management effectively. Specifically, independent female directors help enhance the effectiveness of the board in monitoring management activities, detecting and preventing financial fraud, and disclosing the shortcomings of operational processes, thereby leading to improvements in the firm's performance.

As independent female directors represent the shareholders of firms, they would be more likely to use their votes to ensure that the decisions made by the board are consistent with shareholders' interests (Terjesen et al., 2016). In other words, as independent female directors are not related to management, they would be more likely to disclose the faults of management, thereby ensuring effective accountability and maintaining the shareholders' interest.

Some studies have provided evidence of the positive relationship between independence of female directors

and performance. Bennouri et al.'s (2018) study found that when female directors are independent and have multiple-directorships, they would be more effective in improving performance as measured by a market measurement such as Tobin's Q. They concluded that independent female directors contribute to the firm's financial performance through better monitoring of management activities. Similarly, Terjesen et al. (2016) found that independence of female board members is positively related to firms' performance. In this context, Srinidhi et al. (2020) reported that independent female directors outperformed their male counterparts in terms of improving governance quality through their role in changing the board's process and in turn improving the board's outputs. Specifically, they emphasized that independent female directors played important roles in shifting the power from the CEO and other top executives to the whole board; in this study, for example, with the participation of female members, the board was able to reducing the CEO's compensation.

In the case of Saudi Arabia (i.e. a society characterized by male-female inequality norms), the proposition that independent female directors are able to contribute to corporate performance might not be supported, due to institutional factors that might affect board composition and interpersonal behaviors, leading to reduced effectiveness of female members. In this setting, female directors might face various types of discrimination in performing their duties, such as being unable to access needed records and reports. As a result, they might not be able to carry out their responsibilities to the full extent, which would reduce their effectiveness in improving the performance of firms. Based on the above discussion, the current study proposes that independence of female directors is related to the performance, without assigning the direction of such a relationship.

A third attribute of female directors is their experience. In fact, experienced female directors might outperform their male peers in terms of monitoring and overseeing firms' activities. In other words, if experienced female directors join the board, they may bring multiple types of knowledge and skills and add different views to the boardrooms, leading to improvements in the decision-making process and in turn, in the firm's performance. Prior studies have indicated that experienced female directors are more effective in understanding the firms' environment; therefore, they would be more able to add value to the firm's plans, exchange information with other members of the board, and establish good relationships with the other firms that work in the same markets (Bennouri et al., 2018; Comi et al., 2020).

In this regard, Post and Byron (2015) in their study of firms that specialized in women's products such as makeup, shoes, beauty, jewelry, and other similar goods, noted that female directors brought different experience to the companies. Specifically, because female directors were more knowledgeable about the firms' markets, they would be more effective in making firms' strategies leading to improved performance. As documented by Terjesen et al. (2009), female directors differed from their male counterparts in terms of background, experience, and behaviors. The members of the board were therefore exposed to a broader range of views and experience, leading to improved decision-making in the boardrooms.

In addition, when women have technical and operational experience, they benefit the firm in terms of providing good consulting activities that improve the efficiency of operation process (i.e. facilitating the work process and identifying the operational shortcoming). In this view, the study by Bennouri et al. (2018) found that experienced female directors, as measured by having multiple-directorships, contributed positively to the performance as they are perceived by market investors to be good monitors.

In sum, the literature indicates that a discussion of the role of experienced female directors in corporate performance is highly relevant. Following from this, the current study proposes that the experience of female directors is related to performance of Saudi nonfinancial listed firms.

Taken together, therefore, the current study expects that a relationship exists between the individual attributes of female directors (qualification, experience, and independence) and the performance of firms; hence, the second hypothesis of this study is developed in the alternative form as follows:

H2: Individual attributes of female directors (i.e. qualifications, experience, and independence) are related to the performance of Saudi nonfinancial listed firms.

2.2 The moderating effect of female directors' diligence

In general, directors' diligence refers to the amount of time and effort that a board member spends on discussing the issues presented in the board meetings. Two criteria are used to represent directors' diligence: attendance behavior and committee representation (Adams and Ferreira, 2009). Both give indicators of the effectiveness of directors' representation in the boardrooms. In this regard, Kirsch (2018) argued that female directors are more diligent than their male peers, providing good monitoring and oversight services that improve the firms' performance. The attendance of female directors at board meetings is an indicator of the extent to which female directors contribute to the board's effectiveness. On the other hand, assigning female directors to key committee in the boards implies that they have shown their competence in doing their work and they have gained the board's confidence to be elected to the boards' key committees such as nominating, audit, governance, and executive committees. In regard to this matter, Adams and Ferreira (2009) argued that attendance behavior is a more

important factor, because it is the main means by which female directors are informed about the duties that they should carry out; while, female committee representation is an effective factor modifying the relationship between female directors' representation and firms' performance because the critical decisions of the board are made at the committee level of the board.

In their study, Terjesen et al. (2016) provided evidence of the moderating effect of the attendance of female directors at meetings of the board on the relationship between female directors' representation and performance. Indeed, the amount of work assigned to female directors depends on their attendance at board meetings, an indication of the importance of attendance behavior in moderating the relationship between female directors' representation and firms' performance. In other words, female directors who regularly attend board meetings are seen as active, useful, and effective members who can add value to the firm's performance (Adams and Ferreira, 2009).

Thus, attendance behavior can be considered a proxy for the amount of time and effort exerted by female directors and the extent of their contribution to boards' effectiveness and firms' performance. It can be concluded that the relationship between female directors' representation and performance is dependent on their attendance behavior.

Female committee representation reflects the board's confidence in the female directors' effectiveness and their ability to provide the firms with good monitoring and oversight services. As the committees of the boards focus on specific functions relating to firms' objectives, the presence of female directors on these committees is an indication that these are individuals who are capable of providing a greater contribution to the board output (Srinidhi et al., 2020). It follows that with more female directors assigned to the board committees, they would contribute more to the boards' effectiveness and the firm's performance. In other words, the contribution of female directors on a firm's performance would be greater when more female directors are assigned to the board committees.

In particular, the presence of women on governance and audit committees would enhance the impact of female directors on a firm's performance by providing good monitoring of management actions (Adams and Ferreira, 2009). As members of the audit committee, for example, they would be more capable of detecting and preventing fraud, providing adequate monitoring of financial reporting process, and thereby help ensure reliable financial statements. Thus, the relationship between the presence of female directors and firm performance is likely to increase when more female directors are assigned to the audit committee. Similarly, female representation on a nominating committee is important when selecting and evaluating the performance of CEO and other top executives who are responsible for implementing corporate objectives. In this case, female directors contribute to performance by participating in the decisions regarding nominating and determining the compensation of the CEO, and in decisions about changing the CEO if his performance is lower than that expected and accepted by shareholders. In this context, Green and Homroy (2018) concluded that the relationship between female board representation and performance increased consistently with the assignment of more female directors to board committees: they found that an increase by one standard deviation in the proportion of female board representation was followed by an increase in performance by .19 of a standard deviation, while, if female directors were on the board committees, performance increased by .65 of a standard deviation.

To summarize, it has been found that female directors' attendance at board meetings together with their presence on board committees indicates that they play an active role in improving performance and are not employed merely as token directors. This implies that the relationship between female board representation and performance is dependent on the input of female directors to the boards' activities (in other words, their diligence), as proxied by two measurements: attendance at board meetings and representation on board committees.

Based on above discussion, the current study expects that female directors' diligence moderates the relationship between female board representation and performance: hence, the third hypothesis of this study is stated in alternative form as follows:

H3: The relationship between female board representation and performance is moderated by the female directors' diligence.

3. Research Design

3.1 Data

The current study uses data obtained from all Saudi nonfinancial listed firms during the period 2016-2019. The study focuses on listed firms because the financial information for these firms is available through the official site of the Saud Stock Market (TADAWL). The reason for choosing the period 2016-2019 is that complete financial data necessary for the study is available on TADAWL for this period.

Following prior studies (Bennouri et al., 2018; Rose, 2007; Terjesen et al., 2016), banks and insurance firms are excluded from the sample because they are subject to other specific regulations that might have an affect their performance. Since the unit of analysis for this study is female directorships, sectors with no female directors on their boards are excluded from the sample. This resulted in the exclusion of energy and utility firms, real estate,

media and hotel firms. A previous classification system of TADAWL was adopted to divide the sample into a number of sectors. The previous system was used instead of new one in order to ensure a uniform classification system over the whole period and maintain the consistency of the sample. The final sample consisted of 350 observations. For the purposes of applying a between-firm variation model, the sample consisted of 67, 87, 94, and 102 firms for the years 2016-2019 respectively.

3.2 Models

In order to test the relationship between female board representation and performance, the first model was developed as follows:

$$ROA_{it} = \alpha + \beta_1 FREP_{it} + \beta_2 FQUAL_{it} + \beta_3 FEXP_{it} + \beta_4 FIND_{it} + \beta_5 B-SIZE_{it} + \beta_6 B-MEET_{it} + \beta_7 B-IND_{it} + \beta_8 LEV_{it} + \beta_9 SIZE_{it} + \beta_{10} INDUS_{it} + e_{it} \quad (1)$$

where ROA is return on asset, the accounting measure of performance; the other variables are defined below. The second model was developed to test the moderating effect of female directors' diligence on the relationship between female board representation and performance as follows:

$$ROA_{it} = \alpha + \beta_1 FREP_{it} + \beta_2 FQUAL_{it} + \beta_3 FEXP_{it} + \beta_4 FIND_{it} + \beta_5 FREP_{it} * FMEET_{it} + \beta_6 FREP_{it} * FCOMT_{it} + \beta_7 B-SIZE_{it} + \beta_8 B-MEET_{it} + \beta_9 B-IND_{it} + \beta_{10} LEV_{it} + \beta_{11} SIZE_{it} + \beta_{12} INDUS_{it} + e_{it} \quad (2)$$

Both within- and between-firm variance estimations were used to test the hypotheses. Within-firm variance estimation uses different intercepts for each firm and each year, and therefore captures the variation in a firm's performance for any one firm over time. Between-firm variance estimation, on the other hand, explains the function of female board representation in the variation of performance across firms; to do so, this estimation is run for each of the years of 2016-2019 separately.

3.3 Variables

3.3.1 The Dependent Variable

Firm's performance: this study uses accounting-based measurements of performance. Return on asset (**ROA**) is used commonly in the literature to capture the ability of firms to generate profit from their assets. Following prior studies (Erhardt et al., 2003; Terjesen et al., 2016), the ratio of net income to a firm's assets is used to measure ROA. Return on equity (**ROE**) is also used in this study as an additional measure of performance. The use of two measures of performance enhances the validity of this study. ROE is calculated in line with prior studies (Ararat et al., 2015; Bennouri et al., 2018) by using the ratio of net income to book value of owner's equity.

3.3.2 The Independent Variables

Four independent variables are used in this study. First, female board representation (*FREP*); this variable is measured by the fraction of female directors to the total number of directors (Bennouri et al., 2018; Green and Homroy, 2018; Campbell, Minguez-Vera, 2008; Terjesen et al., 2016). A dummy variable of at least one female director on the board is also used in an additional test (Adams and Ferreira, 2009; Campbell, Minguez-Vera, 2008); Second, female qualification (*FQUAL*); this is defined as the educational level of female directors (Bennouri et al., 2018; Nekhili and Gatfaoui, 2013). This variable is measured using an ordinal variable coded "1" if female directors earned bachelor's degree, "2" for master's degree, and "3" for PhD degree. Third, female experience (*FEXP*); this is an indicator of female director's experience measured by years of work experience in executive positions or as a board member (Comi et al., 2020). Fourth, female independence (*FIND*); this variable measures the degree of female directors' independence. According to the Corporate Governance (CG) code issued by the Capital Market Authority (CMA) in Saudi Arabia, female directors are classified as independent if they have no business relationship with the firm on whose board they sit. This variable is measured by using a dummy variable, taking "1" if female directors serve as independent and "0" otherwise (Srinidhi et al., 2020).

3.3.3 The Moderator Variable

This variable refers to female directors' diligence. Two dimensions are used to measure diligence including: attendance behavior and committee representation. Attendance behavior is measured, following Srinidhi et al. (2020), by using the frequency of female directors' attendance at board meetings; female committee representation is measured by using a dummy variable taking "1" when a female director is a member of one of the board's key committees (i.e. audit, nominating, corporate governance, and executive committee) (Adams and Ferreira, 2009; Bennouri et al., 2018; Green and Homroy, 2018).

3.3.4 Control Variables

Several control variables are included in the regression model, consistent with prior studies (Bennouri et al., 2018; Campbell, Minguez-Vera, 2008; Terjesen, et al., 2016). First, board size (B-SIZE) is adopted to capture the relationship between board size and firm performance, proposing that as the board size increase, the coordination cost increases leading to reduced performance. The total number of directors on the board is used to represent

board size. Second, board meeting (B-MEET); this is an indicator of board effectiveness in monitoring a firm's performance. The present study expects that board meeting is positively associated with performance. This variable is measured by using the number of board meetings held during a year. Third, board independence (B-IND) captures the effect of the presence of independent board directors on firms' performance, proposing that independent directors enhance performance because they provide firms with sound monitoring activities that contribute to limiting misuse of corporate assets and enhancing the efficiency of operational processes. Fourth, firm size (SIZE): this variable represents the size of firm as measured by using the natural log of total assets. In line with previous findings, this study expects that a firm's size will be positively related to performance. Fifth, leverage (LEV); this variable is measured by the ratio of total liabilities to total assets. It is expected that leverage is negatively related to performance. Finally, the sixth variable is Industry (INDUS); this variable captures the effect of industry on performance, since firms' performance might not be consistent across industries. A nominal variable, taking numbers from 1-10 for each industry, classified based on the TADAWL classification, was used to measure this variable.

4. Results

4.1 Descriptive Analysis

Table 1 summarizes the descriptive statistics of the explanatory variables for the full sample of 350 firms-year. The average value of ROA indicates that Saudi nonfinancial listed firms reported a low performance over the period 2016-2019, with a trimmed mean value of .02. In terms of female board representation, female directors consist of only .017 of the total board memberships of Saudi nonfinancial listed firms. Compared to ratios reported in the literature (mainly developed countries), this ratio is low; however, compared to ratios reported in Middle Eastern countries, it is quite typical. As documented by Ouedraogo (2018), on average in Middle Eastern countries women make up about 1% of board directors. The reason for the low percentage of female board representation might be attributed to discriminatory practices and attitudes regarding the capability of women to function in senior positions and on the board of directors. Currently, there are still views held by male management that limit the presence of women in mixed workplaces and restrict them from access to top functions. Nevertheless, it is notable that the number of female board directors has increased from 5 women before 2016 to 8 in 2016 and 9, 15, and 20 for the years 2017-2019, respectively. It is expected that this upward trend in female board representation will continue in the next few years because of increasing attention focused on promoting women to top positions, including board membership. Regarding the firms with women directors, the results show that about 82% of firms have only one female directors, while, 18% of firms have two female directors, and none of the firms has three or more female board directors.

With regard to qualification of female directors as measured by the educational level, the descriptive information shows that the highest percentage of female directors (53.8%) held masters degrees, followed by those who held bachelor's degree (42.3%), while only 3.8% held PhDs. With regard to the experience of female directors in senior positions, the mean length of their experience was about 15 years. Firms look for experienced female directors as they are expected to contribute more to the board outputs and, therefore, help enhance corporate performance. More than three-quarters of female directors (77%) were classified as independent, supporting the view that most female directors are selected from outside the firm, perhaps with the expectation that they will provide effective monitoring and protect shareholders' interests.

For the control variables, board size ranged from 4 to 11 members, with a mean size of 8 members, indicating that Saudi nonfinancial listed firms are adhering to the Saudi CG code that requires the number of the board members to be not less than three and not more than eleven (CG, 2006). However, only about 38% of firms have independent boards, suggesting that the proportion of boards with a majority of independent members was low. The mean value for frequency of board meetings was 5 times per year, which can be considered sufficiently frequent to perform the board's responsibilities. The mean value of leverage was .4, indicating that, in general, Saudi nonfinancial listed firms exhibit a moderate level of leverage and consequently a probability that leverage would have little adverse effect on firm performance. Size of firm was about 14 in average, with minimum value of 9.86 and a maximum value of 19.55. Regarding industry, both agriculture and industrial investment reported the highest proportion of female board representation (23.1%) followed by retail (19.2), while cement and chemical, and construction sectors reported the lowest proportion of female board representation (3.8%). These percentages are somewhat consistent with those reported in Terjesen et al. (2009), who found that female directors were more likely to be present in the agricultural, industrial investment, and retail sectors.

Table 1. Descriptive Statistics

Panel A: Descriptive statistics for continuous variables						
Variable	Mean	Median	Min	Max	SD	
ROA	.02	.023	-5.8	.3	.017	
FRPR	.017	.00	.00	.25	.002	
FEXP	15.9	13	1	36	2.025	
B-SIZE	8.10	8	4	11	.076	
M-MEET	5.21	5	2	17	.10	
SIZE	14.4	14.39	9.86	19.55	.076	
LEV	.41	.40	.01	1	.02	

Panel B: descriptive statistics for non-continuous variables	
Variable	Ratio
Qualification of female directors:	
Bachelor	
Master	42.3%
PhD	53.8%
	3.8%
Independence of female directors:	
Independent	76.9
executives	23.1

Panel C: Descriptive statistics for industry variables									
Industry	Chemical	Cement	Retail	Agriculture	Telecom	Multi-Investment	Industrial Investment	Construction	Transportation
Ratio	3.8	3.8	19.2	23.1	7.7	7.7	23.1	3.8	7.7

4.2 Regression Result

Table 2 summarizes the results for the regression models. Overall, both models (the female board representation model and the moderating model) are significant ($P < .05$) with explanatory power (adjusted R^2 are .13, .12 respectively). However, results for within-firms variation estimation revealed that female board representation is not related to firm performance ($p = .38$). This result is stable when using a dummy variable as an alternative measure of female board representation ($p = .65$). These results imply that female board representation does not contribute to the performance of Saudi nonfinancial listed firms. In addition, the result for between-firms variation estimation also show that female board representation is not associated with firm's performance for any year covering the period 2016-2019 ($p = .48$; $p = .55$; $p = .17$; $p = .23$). Thus, the first hypothesis of this study is not supported.

With regard to female individual attributes (qualification, experience, and independence), none of coefficients of these dimensions is significant when using within-firms variation analysis ($p = .46$; $p = .16$; $p = .30$ respectively). Similarly, as shown in table 2, column 4-7, the results of between - firms variation analysis revealed that individual attributes of female directors are not significantly related to the performance of Saudi nonfinancial listed firms. Thus, the second hypothesis of this study is not supported.

The results of the moderating model also show that female diligence is not significantly related to performance as measured by attendance behavior and female committee representation ($p = .44$; $p = .61$ respectively). Overall, the findings of this study do not support the view that female board representation plays a role in improving firm performance. A possible explanation for this result might be attributed to tokenism theory, which suggests that female board representation should exceed a critical number (for example, three or more female directors or 15 percent of the total board seats) to be effective on the board. Without this minimum representation, the presence of women on the board has no impact on board effectiveness and therefore on firms' performance. According to this theory, an increase in the number of female directors would increase in the board's performance (Bennouri et al, 2018). This argument is based on the view that if the number of female directors exceeds specific limit (three female members or 15 percent of the board seats), the women would have greater influence because gender barriers would have less or no impact on their effectiveness. In this situation, the group

of female directors would be comfortable, supportive, and free to express their opinions, even if they are not in agreement with the male group (Asch, 1951, as cited in Terjesen et al., 2009). This view is also supported by social studies that argue that if a group consists of three or more members, the group would have an independent opinion and in most cases this opinion is right and useful (Singh, Point, and Moulin, 2015). Another possible reason for this result might be the influence of discriminatory practices against women. This challenge faces female directors and hinders their efforts to participate effectively in board activities. In this situation, a few male directors, who constitute an “the old boys club” control the board and may act to prevent female directors from accessing information (for example data related to monitoring activities), or fail to nominate and vote women to join key committees, or to undertake meaningful and relevant tasks (Adams et al., 2015; Comi et al., 2020; Elstad and Ladegard, 2012). Other boards members who do not belong to the dominant group (including female directors) might be influenced by “the socialization impact” of group dynamics, and adopt behavior and decisions in line with those exhibited by the leader of the group (i.e. the chair of the board). In this case, they would be unlikely to act independently in any manner that could improve the board output and the firm’s performance (Rose, 2007). This result is consistent with the findings of some prior studies (Ararat et al., 2015; Comi et al., 2020; Rose, 2007) who found that female board representation had no impact on the performance of the company.

Table 2: Regression Results

Column (1)	Column (2)	Column (3)	Column (4)	Column (5)	Column (6)	Column (7)	Column (8)	Column (9)
Explanatory Variables	Within firms V.	Interaction model	Between firms Variation				ROE	Asset Turnover
			2016	2017	2018	2019		
Independent Variables								
<i>Fraction of female directors</i>	.84	.77	.82	1.1	.53	.98	2.4	-.44
<i>Female directors dummy</i>	.10	.007	.153	-.72	.122	.176	.177	-.34
<i>FQUAL</i>	-.05	-.055	-.05	.09	-.046	-.112**	-.08	.03
<i>FEXP</i>	-.007	-.006	-.01	-.4	-.003	.00	-.014	-.008
<i>FIND</i>	.095	.10	-.01	.97	.031	.002	.09	.110
Moderating Variables								
<i>FREP*FMEET</i>		.22	.111	-1.43	-.09	.077		
<i>FREP*FCOMT</i>		-.28	-1.03	.06	.67	-.14		
Control Variables								
<i>B-SIZE</i>	-.001	.001	.012	-.07	.001	.06**	.01	.04**
<i>B-MEET</i>	.04*	-.04*	.004	-.08*	-.005	-.012**	-.01	.012
<i>B-IND</i>	.04	.04	-.03***	.09	-.037**	.009	-.03*	-.23*
<i>LEV</i>	-.196**	-.19**	-.12**	-.67***	-.09**	-.14*	-.25*	.77*
<i>SIZE</i>	.08*	.08*	.014	.31*	.018**	.04*	.04*	-.11*
<i>INDUS</i>	-.001	-.001	-.01**	.01	-.04**	.001	-.01	-.01
<i>N=</i>	350	350	67	87	94	102	350	350
<i>R²</i>	.13	.12	.27	.26	.24	.26	.15	.17
<i>F value</i>	6.03	5.08	3.4	4.02	3.87	4.49	7.04	8.06
<i>Sig</i>	.00	.00	.00	.00	.00	.00	.00	.00

*p-values represent one-tailed tests when direction of coefficient is consistent with expectations.

Variables are as defined in model specification, described in the methodology section.

With regard to the control variables, the result of regression models for the whole sample show that among the control variables used in the models, the number of board meetings held, firm’s leverage, and size of firm were significantly related to performance at .05% level (p= .00, p= .02, p= .00 respectively). However, the results revealed that a greater number of board meetings per year was negatively related to performance, which is the opposite effect to that predicted. However, beta coefficient ($\beta = -.04$) indicates that this variable did not make a significant contribution to explaining variance in firms’ performance. Leverage was negatively related to performance ($\beta = -.20$), indicating that firms with a high level of leverage tend to experience a lower level of

performance. Finally, size was positively related to performance, with large firms achieving a higher level of performance than small firms.

4.3 Additional test

To test the stability of the initial results, an alternative measurement of firm’s performance was used. First, following prior studies (Ararat et al., 2015; Bennouri et al., 2018), return on equity (ROE) was also used to measure firms’ performance. ROE is defined as the ratio of net income to book value of owners’ equity. As shown in Table 2, column 8, the result of this analysis for the whole sample revealed that none of female board representation coefficients were significant at the .05 level ($p = .213$, $p = .128$, for the percentage of female directors and female directors’ dummy, respectively). This finding confirms the initial result that female board representation is not related to firm’s performance. Second, this study used asset turnover as a second measurement of performance, in order to capture a firm’s capacity to generate sales from its assets, as adopted in Bennouri et al., (2018). Again, the result confirmed the initial results, confirming that female board representation was not related to performance ($p = .75$, $p = .302$, for both the percentage of female directors and female directors dummy respectively).

The study also used the independent t-test to provide further evidence on this issue. In general, this test aims to capture the difference in the means of two sets of data. In the analysis for this study, the performance of firms which had female directors on the board was compared with those that had no female directors. If the mean value of performance of firms with female directors is higher than that of firms that have no female directors, it implies that female directors outperform their male counterparts and their presence improves the quality of the board’s output, potentially improving the firm’s performance.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	90% Confidence Interval of the Difference	
									Lower	Upper
ROA	Equal variances assumed	.019	.890	.816	38	.419	.042	.051	-.06	.145
	Equal variances not assumed			.816	37.96	.419	.042	.051	-.06	.145

The result of independent t-test, as presented in Table 3, shows that the analysis yielded a t value of .816 which was not significant at the .05 level ($p = .419$). The mean value of performance for firms with female directors was, in fact, lower than those of firms that had no female directors (mean value = .048 compared to -.006). Again, this result confirms that the presence of female directors on firms’ boards did not contribute to the overall performance of those Saudi nonfinancial listed firms involved.

5. Conclusion

This study has examined the relationship between female board representation and the performance of Saudi nonfinancial listed firms. Overall, the results show that female board representation is not related to performance of the Saudi listed firms included in the sample. The results also show that none of the female individual attributes selected (namely, qualifications, experience, and independence) was an important factor in improving the performance. Further, the findings show that female diligence (as measured by attendance behavior and female committee representation) did not moderate the relationship between female board representation and performance. These results provide evidence supporting the notion of tokenism, argues that a small minority of female members on a predominantly male board is ineffective, but as female board representation increases, the influence of the female board members increases and board performance increases accordingly. Tokenism may well be operating in the Saudi nonfinancial listed firms, considering that none of Saudi firms included in the sample had reached the critical mass of female board representation (i.e. a minimum of three members), above which female directors can have significant influence on board outcomes and firms’ performance. This finding is consistent with those of prior studies (Ararat et al., 2015; Comi et al., 2020; Rose, 2007) who similarly found that female board representation had no impact on firms’ performance.

The current study contributes to the literature by emphasizing the necessity of having a sufficient minimum number of female directors in order to make a greater contribution to board performance; a token number of female board members is unlikely to have any effect on firms’ performance. In this regard, it is recommended that Saudi policy makers should formulate specific rules supporting female board representation. For example, a quota might

be established to increase the percentage of female directors on the board, such as those applied in Norway and other EU countries. In this way, gender diversity of boards can enhance boards, effectiveness and, in turn, contribute more to the firms' performance. The study also contributes to a broadening of the literature on board representation, which is largely dominated by data from developed, western countries. It provides evidence from a developing country (i.e. Saudi Arabia), with a different socio-cultural context and which is in the early stages of the development of regulatory frameworks related to female board representation. In the Saudi corporate context, it is evident that if firms do not have a critical baseline number of female directors who could be active and supportive of each other, the mere presence of one or two women would have no impact on performance, largely because they would be more likely to conform to the views of the chairman or a leading group of male members.

The current study has some limitations. In particular, although Tobin's Q is widely used to measure firm performance in literature, this variable requires information that are not available from TDAWL database; thus, the study used accounting measurements of performance that might be biased due to management choices of asset evaluation principles. Another limitation of the study is related to data analysis. The literature suggests that the relationship between female board representation and performance might be nonlinear rather than linear. However, because few firms in Saudi Arabia have more than one female director, there were insufficient data to carry out this analysis. It is suggested that future studies can address this issue when there are more female directors on the boards. Furthermore, it is suggested that future studies could address the effect of national culture as an important factor affecting the relationship between female board representation and performance. It is also suggested that future studies could investigate the relationship between other individual attributes of female directors and their performance, beyond qualifications, experience, independence, and diligence. These might include the number of directorships held by female directors, or the presence of family ties between female directors and the board's chair or other controlling members. The impact of regulations related to female directors' work on their contributions to firms' performance is another possible issue for future study. It is also recommended that policy makers improve the effectiveness of female board members through relevant training and education programs.

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