

# An empirical evidence on the effect of women board representation on firm performance of companies listed in Iraq Stock Exchange

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**Abstract:** Despite that fact that Iraq has gone very far in the liberalization of women, Iraqi board of directors is still dominated by men. However, gender diversity is one of the largest concepts of board diversity and a major issue within corporate governance where several studies seek to discover the influence of diversity on firm performance. This article aims at examining the effect of women representation on firm performance of Iraqi listed firms using panel regression analysis. The empirical results of this paper provide evidence of a positive and significant relationship between female directors and firm performance as measured by Return on Assets while no relationship with the Tobin's q. The important policy implication of this finding is that the Iraqi Stock Exchange and Iraqi Security Commission should incorporate gender diversity in CG practices and encourage women directorship in Iraq.

**JEL Classifications:** G31, G34, G38, M40, M41

**Keywords:** Corporate governance, firm performance, gender diversity, fixed-effects model, random-effects model

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## 1. Introduction

In the recent debate, in accordance with the International Finance Corporation (IFC) emphases that the overall corporate governance (CG) practices are seen as a building limit, bringing issues to light, and extending the talk about gender diversity on boards in creating nations (Nuhu & Ahmad, 2017a). Great CG helps firms to enhance their performance, initiate advance development, minimise hazards of different matters, tackle speculators, and expected to drastically decrease financial crises. To be genuinely compelling, a board requires a diversity of aptitudes, societies, and perspectives to settle on savvy choices with enduring effect (Hartzler, Bright, & Salazar, 2016). Literature has demonstrated that wide arrangement of business advantages is related to gender diversity on corporate boards. These enhanced financial performances and shareholder value, increased customer and employee satisfaction, rising confidence for investors, and more prominent market information and notoriety (Hartzler et al., 2016). Also, gender diversity is one of the major issues in CG as it is viewed as a benefit that can be utilized to decrease organization costs while corporate performance is moved forward (Kakabadse et al., 2015).

This issue has attracted tremendous attention from various parties including corporations, governments, academicians and members of the public. The issue has maintained a high public profile because of coverage in the press, shareholder proposals by advocacy groups and policy statements from major institutional investors (Kılıç & Kuzey, 2016). Regardless of its significance and effect, empirical evidence on the link between board gender

diversity and firm performance is not adequate especially in the cultural context of Iraq. Many research dominantly focused on the link between other diversity and different measures of performance (Kramer, Konrad, Erkut & Hooper, 2006) while the issue of gender is ignored. Importantly, most CG studies from the Arab world have largely ignored to touch the role of female directors on the board as experience has shown that a large number of these studies only concentrated on other issues while little attention was paid to this important construct. The scholars in this regard have called for further investigations on the relationship between board gender diversity and firm performance (Kakabadse et al., 2015; Kılıç & Kuzey, 2016; Lawal, 2016; Nuhu & Ahmad, 2017a).

Therefore, the objective of this paper is to examine the effect of women board representation on firm performance of listed companies in Iraq. The remaining parts of this paper are subdivided into four sections as follows: the second section of this paper is on literature review and hypotheses development, section three deals with methodology and model specification, section four provides results and analysis of the empirical findings. The last section revolves on conclusion and recommendations offered by the paper.

## **2. Review of the related literature and hypotheses development**

CG has been defined by many scholars in different ways. According to Nuhu & Ahmad (2017), CG is defined as principles, guide and mechanisms used in achieving code of best practices being public or private organization. CG mechanisms comprise of board size, independent non-executive director, chief executive office duality, board meeting, interlocking director and diversity (gender, educational, experience, skills, etc) among others (Nuhu & Ahmad, 2017a). Every good CG practices improve firm performance (Hartzler et al., 2016). CG is considered as the mechanisms of which firms use to employ in order to govern their activities among which there is provision of incentives for the representatives of the firms served as agents of the firm which could be way of persuading the agents to serve in the principal's interest. This, in addition, could reduce the information asymmetry or gap where there is also provision of a suitable control mechanisms put in place. According to Fama (1980) the board of directors is the most vital internal control mechanism of the firm which could promote and protect the interest of shareholders. Furthermore, its monitoring mechanisms is considered effective only if it delivers standard quality, unbiased advice or information, by which is only achieved if the directors of the firm are independent.

In this line of argument and thought, Carter, Simkins & Simpson (2003) contended that more diversity among the board increase board independence and reduce conflict of interest between the owner and the agent. For example, monitoring management activities are improved through gender diversity among the board members. Thus, in line with the agency theory, many scholars such as Fontrodona & Sison (2006) and Terjesen, Sealy & Singh (2009), suggested the inclusion of board diversity into further CG research. The effect of gender diversity depends on different industries. Ali, Kulik & Metz (2011) in their empirical findings found that the service industry is more capable in capitalizing the effect of board diversity. In addition, Gneezy, Niederle & Rustichini (2003) showed that in a competitive environment, women are more effective than men. (Arena et al., 2015; Lucas-Pérez, Mínguez-Vera, Baixauli-Soler, Martín-Ugedo, & Sánchez-Marín, 2015).

Women board representation or gender diversity is one of the larger concepts of board diversity (Milliken & Martins, 1996). Hence, to be effective in decision making, the board

of directors being in private or public sectors require diverse board equipped with skills, experience, and culture views to make good decisions that will contribute to positive impact of the firm performance (Hartzler et al., 2016). Scholars and advocates of board diversity argue that the boards should be an amalgam and a reflection of the composition of the society through which the ethnicity, professional backgrounds and gender representation are adequately appointed as such right composition will assist in providing diverse perspectives (Milliken & Martins, 1996; Walt & Ingley, 2003). Board diversity is adequately supported as it will help to fulfil the yearnings of shareholders (Carver, 2002), corporate philanthropist (Coffey & Wang, 1998), other stakeholders (Keasey, Thompson, & Wright, 1997), and for the purpose of meeting commercial obligations to business partners (Mattis, 2000; Daily & Dalton, 2003). Burton (1991) however argued that the board diversity should not just ensure fair representation but must also be done on merit principle. This fact has been corroborated by Robinson & Dechant (1997) who postulate that through board diversity better understanding of marketplace is well understood, creativity increased, leadership within the organization is enhanced while effective problem-solving skills are developed.

In the corporate world today, experience has shown that women are not fairly represented. For instance, Catalyst census in US and UK have shown and revealed that 12.4 percent and 6.4 percent are women/female non-executive directors in both US and UK respectively while the percentage of chief executive directors/directors is only 2 percent in both US and UK (Singh & Vinnicombe, 2004). In Canada board of director formation, the percentage of women allowed on the board is 5 percent (Ronald J. Burke, 1997). Hence, 86 percent of CEOs of various board regarded women representation as an important factor for the success of their organizations (Mattis, 2000).

Importantly, the extend research argued that large percentage of the female directors are mostly drawn from outside and while the majority are from non-corporate organizations (Hillman, Canella, & Harris, 2002). Zelechowski & Bilimoria, (2004) also asserted that women are also likely to have support/staff managerial skills for human resources, legal, and public relations compared to operations, and marketing skills which are commonly possessed by men. As a result of career ceiling, experience has shown that a lot of women are not opportune to have extensive and detailed experience in the corporate firm, thus they may not be appointed as non-executive directors. Based on the foregoing, this study synthesized and discussed the direction of empirical research on women participation and board diversity in the literature that will lead to the hypotheses development for this paper. Hence, the next section is the reviews of the previous debate on the relationship between gender diversity and firm performance.

### **2.1. Relationship between women board representation and firm performance**

The empirical study of gender on the performance of firms were previously conducted by Francoeur, Labelle, & Sinclair-desgagne (2008); Mahadeo, Soobaroyen, & Hanuman (2012). Even though several studies paid attention to gender diversity, their studies concentrated on the direct influence while the intermediate factors were ignored. These factors could be and not limited to, characteristics of the board of directors, among others. Many studies argued that, due to the vital role the board is playing on decisions making, the characteristics of the said board could contribute on the explanation of the role of board on the performance of the firm (Forbes & Milliken, 1999; Francoeur et al.,

2008; Adams & Ferreira, 2009). It is clear that in all companies, being listed or not listed; the governance of the firm solely depends on the board of directors which serve as the main mechanism of governance. This is in addition to the implementation of policies; therefore several studies tried to establish the extent to which some distinguished features of the board have on the monitoring and the composition of top managers' benefits (Core, Holthausen, & Larcker, 1999).

In the case of gender diversity, however, there is limited research in relation to the compensation or benefit gap between the two different gender i.e. men and women, who hold any position categorised as managerial level, and also limited attention is paid to the involvement of women both in the process and the action in board's compensation monitoring (Adams & Ferreira, 2009; Lucas-Pérez et al., 2015). The relationship between gender variety and firm performance will for a long time remain an interesting area of studies (Nuhu & Ahmad, 2017a). Hence, the scarce and conflicting results of the existing studies have encouraged this study. As development on academic research is increasing recently, many studies focused on gender diversity as a result of increasing organizational interest on gender and this is attributed to both academic, social and business environment (Carter et al., 2003; Huse & Solberg, 2006). In related development especially in the area of economics, there are a lot of studies which put consideration on both gender and firms' performance.

A lot of theoretical perspectives have equally supported gender diversity on the boards. For instance, the main concern of agency theory hinges on the board of director's autonomy while it also advocates equilibrium between the executive and non-executive directors. Agency theory contended that a better monitoring mechanism is effective only when the board is full with the diverse board members that will enhance the independence of board's decision making (Carter, Souza, Simkins, & Simpson, 2007). Therefore, it is important that when diverse groups are equally represented, the board will be balanced; there will be no individual or a small segment of people who can dominate the process of decision-making (Hampel, 1998).

In addition, board diversity also ensures that all stakeholders of the firm for the purpose of equity and fairness are adequately represented (Keasey et al., 1997). In the recent time, the issue of gender diversity has widely attracted the attention of different scholars (e.g., Byron & Post, 2016, Garanina & Kaikova, 2016, Khaw, Liao, Tripe, & Wongchoti, 2016, Solakoglu & Demir, 2016, Sila, Gonzalez & Hagedorff, 2016, Toumi, Benkraiem, & Hamrouni, 2016, Hyun, Yang, Jung, & Hong, 2016). Some of the issues being discussed including: the possible reasons why there are fewer women on the corporate boards of many firms (Burke, 1997; Singh & Vinnicombe, 2004); the precursor of both organizational and outside forces for women on boards (Ronald J. Burke, 2000) and women managers and directors' experiences and perceptions about the role they are playing on the board (Huse & Solberg, 2006; Jamali, Safieddine, & Daouk, 2007).

Again, in recent time, experience has equally shown that since most women do not have corporate background, they are far more likely to hold any unique, valuable, and uncommon information since they have been barred from climbing the traditional corporate ladder. However, Letendre (2004) argues that women directors have the capacity and wherewithal to bring the divergent point of views to the boardroom through which lively discussions can be provoked. This line of argument has also been supported by Bilimoria & Wheeler (2000) who advanced that an average female director is younger than her male counterpart, and which avails the board to derive a lot of benefits of new ideas being injected through dynamic deliberations. This, therefore, indicates that women

may possibly have diverse observations, values, and manners of expressing and communicating their opinions. In this regard, it is possible that women will query the tradition and strongly express their concerns about any issue bordering on the managerial decision by asking several questions and engage in open discussions (Fondas & Sasselos, 2000; Huse & Solberg, 2006). Despite that, gender diversity often generates disagreement; Letendre (2004) however suggests that such discords are good for the board as it brings about dynamic board and decision making.

In another stream of research, advocates of gender equality argued that the formation of women within the board is adequate in the masculine industry (Greed, 2000). Hence, de Cabo, Gimeno & Nieto (2012) empirically demonstrated and contended that there are low proportion of female/women board of directors in technical-specific industries such as oil and gas; commodities, manufacturing, industry and construction among others. From the existing literature, as previously discussed, many researchers in developed countries found a positive relationship between women directors and firm performance. For example, Isidro & Sobral (2015); Ellwood & Garcia-Lacalle (2015); Estapé-Dubreuil & Torreguitart-Mirada (2015); Lucas-Pérez et al. (2015); Vintil, Păunescu & Gherghina (2015); Byron & Post (2016); Garanina & Kaikova (2016); Hyun et al. (2016); Khaw et al. (2016); and Toumi et al. (2016).

Similarly, other research of the same area in the developing countries, which include: Fidanoski, Simeonovski & Mateska (2014); Strøm, D'Espallier & Mersland (2014); Hassan, Marimuthu & Johl (2015); Solakoglu & Demir (2016); and Das & Dey (2016) established a positive connection between gender diversity and the performance of an organization. Other studies such as Ramly, Sok-Gee, Mustapha & Sapiei (2015) included not only the firms' performance but also the value of the firm in relation to board diversity where they also established a positive connection which is attributed to the uniqueness and diversification of the members of the board attributes, which in turn, could lead to an utmost decisions.

In related development, some studies conducted on the percentage of women on board of directors and firms' performance found that positive and significant relationship exists among them in addition to their capacity (Shungu, Ngirande, & Ndlovu, 2014; Ongore, K'Obonyo, Ogutu, & Bosire, 2015; Pathan, Haq, & Gray, 2015). The study added that, though, female directors more often than not, are not as much oriented on power compare to their male counterpart, yet, they paid more attention to their responsibility and they were also compassionate compare to their counterpart on board (Ramly et al., 2015). This is in addition to the fact that, the female directors are more neutral with little or no interest on personal ground where they also work harder than the male directors which could lead to an increase in the performance of the organisations (Liao, Luo, & Tang, 2015; Lucas-Pérez et al. 2015).

On the contrary or conversely, some studies reported negative relationship between gender diversity and firm performance. Example of such include: Haslam, Ryan, Kulich, Trojanowski, & Atkins (2010); Jurkus, Park, & Woodard (2011); Chapple & Humphrey (2014); Gregory-Smith, Main, & O'Reilly (2014); Garanina & Kaikova (2016). In another development, literature has also provided non-existence of relationship between gender diversity and performance in both developed countries and developing countries (Carter, D'Souza, Simkins, & Simpson, 2010; Zemzem & Kacem, 2014; Alm & Winber, 2016; Garanina & Kaikova, 2016; Sila et al., 2016). Again, it was equally shown that research on women directorship in relation to corporate value creation in developing country like Iraq is not specifically addressed by the literature, as most previous studies only focused on the

association between family ownership and the number of female directors (Moulin & Point, 2012; Nekhili & Gatfaoui, 2013).

In addition, Kilic (2015) found an adverse association between gender diversity and bank performance. The evidence showed that the “critical mass” rather than the simple presence of women has an incremental benefit on firm performance. In addition, results have shown that the qualification/educational of female directors are statistically negatively affects company performance (Arena et al., 2015). Finally, in relation to the conclusions of the studies examined, or the evidence produced, it is noted that whether the studies found a positive influence of the presence of women on the board of director on performance, a negative influence or no statistically significant influence at all (Cabrera-Fernández, Martínez-Jiménez, & Hernández-Ortiz, 2016). Overall, the authors find some weak evidence that gender diversity impacts firm performance. Moreover, findings are fragile with respect to the measures of diversity and performance selected. (Solakoglu & Demir, 2016).

Liang, Xu & Jiraporn (2013) contended in their work that there is no significant relationship associated between women and firm performance. There is no agreement on the results relating to the effect of the presence of women on these boards (Cabrera-Fernández et al., 2016). Moreover, there is no well-defined theoretical basis to explain this relationship, making it necessary to use a multi-theoretical approach (Cabrera-Fernández et al., 2016). Finally, and in relation to the conclusions of the studies examined, or the evidence produced, we noted whether the studies found a positive influence of the presence of women on the board of director on performance, a negative influence or no statistically significant influence at all (Cabrera-Fernández et al., 2016).

Further, other previous empirical research equally argued that female board members have high tendency to associate their firms with different constituencies (Daily, Certo, & Dalton, 1999). According to Adams & Ferreira (2009), female independent directors have similar capacity and mostly capable than their male counterparts based on CG theory. This possibly will explain the reason why contemporary empirical studies tend to reveal an increasing appointment of women as autonomous directors (Ruigrok, Peck, & Tacheva, 2007; Simpson, Carter, & D’Souza, 2010). Hence, based on the above empirical and theoretical debate, the following hypotheses were proposed.

*H<sub>1</sub>: There is a relationship between women board representation and Firm Performance.*

*H<sub>1a</sub>: There is a relationship between women board representation and ROA.*

*H<sub>1b</sub>: There is a relationship between women board representation and Tobin’s q.*

### **3. Data and empirical method**

#### **3.1. Data and sample**

This study adopted the quantitative research approach analysis. The study covered the duration of five years from 2011 to 2015. Hence, as discussed above, the objective of this paper is to provide empirical evidence between female gender representation on the board and firm performance. Therefore, this study used the data from the period of 2011 to 2015 from Iraq stock exchange. By checking the Based on the Iraqi Stock Exchange, there are 121 listed companies in Iraq, 71 firms are with complete annual report for the chosen period. Thus, 71 of listed firms included in the current study. Accordingly, the total

observations of this study are 355 data points. The paper adopted *STATA Software* for the panel data analysis.

### 3.2. Dependent variables

The paper adopted the accounting (ROA) and market value-based (Tobin's q) techniques for performance measures. Hence, ROA enables the study to draw the conclusions regarding the profitability of the firms while the Tobin's q, provides the basis for statistical inferences to investors (Lawal, 2016; Gentry & Shen, 2010). However, Firm Profitability ROA and Tobin's q were taken in line with the recommendations by prior studies (Giannarakis, 2014; Lawal, 2016; Saif-Alyousfi, Saha, & Md-Rus, 2017a, 2017b; Ben-Amar, Chang, & McIlkenny, 2017).

### 3.3. Independent variables

Women Board Representative (WBR) is independent variable for this study to test the relationship between female representation on the board and firm performance. In line with the above literature, the percentage of female directors on the board of directors were used to measure boardroom gender diversity (Marinova, Plantenga, & Remery, 2016; Rao & Tilt, 2016). Thus, to check the robustness of the estimation, one alternative proxy was employed for gender diversity (Campbell & Mínguez-Vera, 2008; Lawal, 2016). The gender diversity dummy variable was adopted. Therefore, the dummy variable makes the distinction between the firms having at least one woman on the board of directors have one (used 1) and the firms that do not have any female director of the board have zero (used 0).

### 3.4. Model

The relationship between women board representation and firm performance measures is tested using clusters of multivariate regression models. Therefore, two models were used for measuring firm performance (FP), thus, ROA and Tobin's q, which were regressed against women board representation. Therefore,  $FP_{i,t}$  represents firm performance (DV);  $\alpha FP_{i,t}$  represents constant;  $\beta$  represents beta or coefficient or slope or estimator depending on the case;  $WBR_{i,t}$  represents women board representation and  $\varepsilon_{i,t}$  represented error term, as shown in the equation (1).

$$FP_{i,t} = \alpha FP_{i,t} + \beta WBR_{i,t} + \varepsilon_{i,t} \quad (1)$$

## 4. Empirical findings

In line with the proposed research methodology, performance measure was regressed against women board representation. Hence, the analysis consists of descriptive and panel data regression. Correlation analysis which was excluded from the study has only one

independent variable. The results of the model regression showed that the women board representation is positive and significantly associated with ROA. While, regressed Tobin's q against women board representation are statistically insignificant. See Table 1, 2, 3 and 4 below.

#### 4.1. Descriptive statistics

Descriptive statistics on WBR, firm performance measure (ROA and Tobin's q) for the sample of listed firms in Iraq stock exchange from the period of 2011-2015 are presented in Table 1. For minimum and maximum in descriptive results, the ROA range from minimum of -0.095 to maximum of 0.654. Tobin's q is from 0.013 to 448.882. The independent variable WBR minimum of 0 and maximum of 1 since it is a dummy variable. Therefore, for descriptive analysis of mean and standard deviation, for ROA has the mean of 0.016 and standard deviation of 0.154, Tobin's q has a mean of 5.714 and standard deviation of 30.491. Finally, WBR has a mean of 0.392 and standard deviation of 0.489.

TABLE 1. DESCRIPTIVE STATISTICS ON WBR, FIRM PERFORMANCE MEASURE (ROA AND TOBIN'S q)

Variable	Mean	Std.Div.	Min	Max
ROA	.0158049	.1542321	-1.095039	.6538467
Tobin's q	5.714492	30.49121	.012629	448.8823
WBR(Gender)	.3915493	.4887857	0	1

#### 4.2. Panel regression analysis

Most of the previous studies employed the dynamic panel methods, such as the system Generalized Method of Moments (GMM), to examine the endogeneity problem (Saif-Alyousfi, Saha, & Md-Rus, 2018a, 2018b). However, Saif-Alyousfi et al. (2017a, 2017b) used fixed effects model and random effects model to solve the endogeneity problem that can occur due to the firm fixed effects.

TABLE 2. XTREG ROA WOMEN BOARD REPRESENTATION (WBR) FIXED-EFFECTS MODEL

ROA	Coef.	Std. Err.	t	P> z	95% Conf. Interval	
WBR	-.1870232	.0361824	-5.17	0.000	-.2582439	-.1158024
Cons	.0890337	.0154139	5.78	0.000	.0586934	.1193741
Sigma_u	.14150078					
Sigma_e	.11441872					
Rho	.60465066 (fraction of variance due to u_i)					
F(1,283) = 26.72						
Prob > F = 0.0000						
Number of obs = 355						
Number of groups = 71						

Thus, the study first carried out a regression analysis for fixed and random effects on the IV (WBR) to each DV (i.e., ROA and Tobin's q) before estimating Hausman test (Hausman, 1978) to know whether it is appropriate to stop or to proceed with LM test (Breusch and Pagan Lagrangian multiplier test for panel Data). See Table 2, 3, 4, and 5 for each fixed and random effects of the IV to DV.

TABLE 3. XTREG TOBIN'S Q WOMEN BOARD REPRESENTATION (WBR)  
FIXED-EFFECTS MODEL

Tobin's q	Coef.	Std. Err.	t	P> z	95% Conf. Interval	
WBR	.611033	5.350589	0.11	0.909	-9.922117	11.14418
Cons	5.477454	2.261543	2.42	0.016	1.025389	9.929519
Sigma_u	26.508911					
Sigma_e	16.749993					
Rho	.7146683 (fraction of variance due to u_i)					
F(1,276) = 0.01						
Prob > F = 0.9092						
Number of obs = 348						
Number of groups = 71						

TABLE 4. XTREG ROA WOMEN BOARD REPRESENTATION (WBR)  
RANDOM-EFFECTS MODEL

ROA	Coef.	Std. Err.	z	P> z	95% Conf. Interval	
WBR	-.0728202	.0231799	-3.14	0.002	-.1182519	-.0273885
Cons	.0443176	.0163829	2.71	0.007	.0122077	.0764275
Sigma_u	.10018306					
Sigma_e	.11441872					
Rho	.43395538 (fraction of variance due to u_i)					
Wald chi2(1) = 9.87						
Prob > chi2 = 0.0017						
Number of obs = 355						
Number of groups = 71						

TABLE 5. XTREG TOBIN'S Q WOMEN BOARD REPRESENTATION (WBR)  
RANDOM-EFFECTS MODEL

Tobin's q	Coef.	Std. Err.	z	P> z	95% Conf. Interval	
WBR	-2.140671	4.219339	-0.51	0.612	-10.41042	6.129081
Cons	6.477409	3.547094	1.83	0.068	-4.747673	13.42958
Sigma_u	25.377164					
Sigma_e	16.749993					
Rho	.69654597 (fraction of variance due to u_i)					
Wald chi2(1) = 0.26						
Prob > chi2 = 0.6119						
Number of obs = 348						
Number of groups = 71						

### 4.3. Hausman's test

Based on the result of Hausman's Test revealed that the ROA has a significant result; therefore, the random effects model is not rejected. Hence, the results of Hausman's Test proved that random effects of ROA are appropriate while for Tobin's q is not. Therefore, there is a need for the next step by running LM Breusch-Pagan Lagrange Multiplier specification test as proposed by Breusch & Pagan (1980) so as to know whether to stop at random effects or to proceed with the pooled OLS.

TABLE 6. LM TEST (THE BREACH-PAGAN LM TEST RESULTS)

	Variance	Sd
Tobin's q	929.7139	30.49121
E	280.5623	16.74999
U	644.0004	25.37716
Test	0	
T. Stat (Chi2)	343.25	
Prob.	0.0000	

Source: Own calculations based on data from the Iraq Stock Exchange (ISX) and Iraq Securities Commission (ISC) for the years (2011, 2012, 2013, 2014, 2015).

The result in Table 6 shows that the null hypothesis should be rejected. This is because the redundant Breusch-Pagan LM Test probability value is low as the p-value is less than 5%. Therefore, this shows that there are no significant differences across the listed firms, therefore random effects estimator for ROA. Again, the results also fail to reject the null hypothesis using Tobin's q for random effects model. The study, therefore, concludes that random effect is better to be estimated than OLS. Hence, the empirical results of the effect of women board representation on the performance of the listed firms in stock exchange in Iraq showed significant result with ROA while insignificant result with Tobin's q. The hypothesis 1a of the study is therefore supported while hypothesis 1b is not supported.

These findings also supported agency theory, contended that the women should be included in information sharing of the board of director with the equal or high percentage of women director representative on the board results. Hence, this results are consistent with prior studies (Das & Dey 2016; Fidanoski et al., 2014; Hassan et al., 2015; Lucas-Pérez et al., 2015; Jada, Murugiah, & Adzis, 2016; Solakoglu & Demir, 2016; Strøm et al., 2014; Toumi et al. 2016).

## 5. Conclusion and recommendations

This paper adopted panel data method to analyse panel regression by investigating the relationship between women board representation and performance of the listed firms in Iraq stock exchange. To investigate the study, the agency theory was used as guide for this research. The findings showed that women board representative has a positive statistically significant with the performance of the listed firm in Iraq using ROA. However, while examining the women board representative, it was found that there is no relationship with Tobin's q. Therefore, the findings recommend that listed firm in Iraq should imbibe by

increasing the numbers or appoint higher percentage of women into the board of director so as to improve and enhance the performance of companies in Iraq.

Again, this research has limitations as other prior studies. The respondents of this study are the listed firms in Iraq, therefore, it is recommended that the future study extends the scope of the study into other categories of business organizations such as registrar firms and small and medium enterprises. The paper also suggests that the future researchers should include more independent variable such as board commitment, board independent, and composition, among others and investigate using the approach of GMM model. Moreover, future studies are recommended to empirically investigate the moderating and mediating variables that influence women board representatives and other financial or sector performance.

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