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Article

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FINANCIAL ECONOMICS | RESEARCH ARTICLE

Gender diversity on the board of directors and its impact on the Palestinian financial performance of the firm

Nizar Dwaikat¹, Ihab Sameer Qubbaj² and Abdelbaset Queiri^{3*}

Abstract: This study aims to examine the impact of gender diversity in the Board of Directors (BOD) on the firm performance—return of assets (ROA) and return of equity (ROE)—using a sample of Palestinian non-financial companies for the period 2008–2015. Gender diversity was measured as a percentage of women in the BOD, and dummy variable for the existence of at least one woman in the BOD. The study employed method of two-stage least squares (2SLS) to address endogeneity issues in the relationship between gender diversity and company performance. The findings show that women still exist modestly in the BOD, women exist more in the BOD of industrial firms than in the BOD of service firms. Furthermore, firms with at least one woman in the BOD have a large debt ratio, independence of BOD, better ROA performance, less size, and no difference in BOD size. The results of 2sls show that gender diversity has a positive and statistically significant impact on firm performance.

Subjects: Finance; Corporate Finance; Corporate Governance

Keywords: board of directors; gender diversity; Palestine; financial performance; corporate governance

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PUBLIC INTEREST STATEMENT

This study offers to the readers a new insight from an emerging market on the relationship between the presence of woman in the BoD and firm's performance. The study aims to revalidate that gender diversity is desirable to enhance financial firm performance and further justification is provided in this regard. However, to overcome the issues of endogeneity and to provide more rigor findings, 2SLS analysis was employed. In this regard, firms are better informed on the role of gender diversity of BoD to enhance their financial performance. This study therefore offers a new insight of enhancing firm performance which is beyond the capital structure formation and corporate governance mechanisms.

1. Introduction

The Board of Directors (BOD) is responsible for running and leading a company as a significant internal tool of governance within a firm, as well as for the protection of the rights of the stockholders of the firm (Amran & Che Ahmad, 2011; Gillan, 2006; Kılıç & Kuzey, 2016). In particular, BOD does many jobs (Chen, 2008), such as deciding on the suitability of the firm's strategies; controlling and overseeing management appointments (Pritchard et al., 2003); overseeing and rewarding top management (Hermalin & Weisbach, 1998); connecting the company to the outside environment; and offering information to management (Cornally et al., 2001). These jobs make BOD one of the significant internal corporate governance tools for corporations (Campbell & Minguez-Vera, 2008). On the contrary, BOD has carped for the failure of companies and a fall in the stockholders' value (Abidin et al., 2009). Some of the reasons for the failure of such companies have been ineffective oversight by BOD and lack of control over the firm's management, which follows its interests on account of the stockholders' interests (Kılıç & Kuzey, 2016; Kirkpatrick, 2009). Also, the lack of accountability of the BOD to its stakeholders (Abidin et al., 2009). Thus, when management is properly supervised and disciplined, the performance and value of the firm will be improved accordingly (Abdullah, 2004).

The issue of gender diversity in the BOD has received enormous attention from different parties such as companies, the public, governments, and academic researchers. Company scandals, such as those within Enron, WorldCom, Tyco, and Parmalat, have also strengthened attention to the effect of gender diversity on the company performance and value. Many practitioners have called for an increasing percentage of women on board in the aftermath of these scandals (Oxelheim et al., 2006). Many theoretical pretexts exist explaining the relationship between the gender representation in the BOD and the company performance. However, based on the mixed and sometimes conflicting findings from previous studies, there is still no unanimity on the relationship between the presence of women in BOD and the performance of the company (Kılıç & Kuzey, 2016). Indeed, such mixed findings are not unforeseen, as the connection between gender diversity in BOD and company performance is theoretically and practically complicated (D. D. Carter et al., 2007).

Gender representation in boardrooms is increasing slowly but steadily (Pathan & Faff, 2012). Indeed, several countries encourage gender representation in the BOD, some of which even mandate companies to hire at least one woman director (Kılıç & Kuzey, 2016). For example, the minimum women representation in the boardroom in Norway is 40% (Renee B. Renee B. Adams & Funk, 2012). Women are largely under-represented on firms' BOD in both advanced and emerging markets (Deloitte Global Center for Corporate Governance, 2019).

The issue of gender equality has also recently appeared in Palestine (Kurt & Nashashibi, 2013; Nahleh et al., 1999). Generally, the basic goal of such regulations is to encourage the recruitment of women to the firm's BOD and thus to create an efficient BOD capable of safeguarding the interests of stockholders. These developments have strengthened interest in the relationship between the representation of women in the boardroom and the company performance (Kılıç & Kuzey, 2016). This research primarily evaluates the effect of woman representations in the boardroom on company performance (i.e. financial performance) as measured by the return on assets (ROA) and the return on equity (ROE). This study uses an analysis method of instrumental variable regression, using all firms' data from 2008 to 2015 listed on the Palestine exchange market (PEX).

Therefore, this research offers many contributions to the present literature. First, there is a lack of empirical evidence on the relationship between woman representation in the boardroom and company performance in the emerging market. Most previous researches have been based on the data from the advanced market (Kılıç & Kuzey, 2016). This study contributes to such efforts, more specifically concerning the gender diversity in the context of BOD, and how that affects the firm's

performance. Then, this paper adds empirical proof to the literature on the relationship between the representation of women in the boardroom and the company performance from a developing country context. Second, the results may reinforce existing evidence from the Palestinian context, showing that women in BOD can improve the performance of their firms. For example, Women Matter report showed that firms with women at the top of firm have better financial performance (McKinsey & Company, 2012). There is no unanimity as to whether women in BOD can increase company performance due to indecisive findings (Bruno et al., 2018; Wang, 2020)

Third, the causal relationship between the woman representation in the boardroom and the company performance is investigated through an endogeneity analysis. One potential reason is that diversity in the board can positively affect the company performance, whereas another potential reason is that high-performing firms tend to hire more women on their BOD. Therefore, this study may concentrate on the causal relationship between woman representation in the boardroom and the company's performance.

The rest of the article progresses as follows: the theoretical framework is presented in section two; section three briefly reviews the relevant literature and the evolving hypotheses; the data, the chosen sample, and the variables are described in section four; the findings are examined in section five; the results are discussed in section six; finally, the conclusions and implications of the study are presented in section seven.

2. Theoretical framework

2.1. Resource dependence theory

In general, corporations operate in an open system and need to exchange and obtain resources to survive, creating a dependency between companies and outside parties (Davis & Adam Cobb, 2010). Companies can benefit from fundamental benefits linked to external parties: (1) information and expertise; (2) the creation of communication channels with significant constituents of the company; (3) the provision of commitments for support from significant organizations or groups; (4) the creation of legitimacy for the company in the outside environment (Hilman & Dalziel, 2003).

This theory suggests that BOD link their companies to other outside organizations to deal with environmental dependence (Hilman et al., 2009; Hilman & Dalziel, 2003). In this vein, board diversity extends the communication channels, networks, and corporate links (Kilic, 2015); facilitates access probabilities to funds; enhances relations with rivals and consumers (Reguera-Alvarado et al., 2015), for example, some corporations assign women directors in their BOD to sustain a good relationship with their women consumers (Terjesen et al., 2009). Thus, the links provided by women directors to outside resources of dependency can increase critical resourcing, therefore improving company performance (Reguera-Alvarado et al., 2015).

In addition to providing access to resources, women representing in the BOD enhance the company's legality by indicating that the company encourages gender equality (Lückerath-Rovers, 2013). Thus, women directors on BOD may send good signs to different stakeholder cohorts such as consumers, investors, and societies; henceforth, the company can evolve or enhance its image public (R. R. Adams & Ferreira, 2004; Huse & Solberg, 2004).

2.2. Agency theory

This theory focuses on the conflicts between who owns and who managed the firm (Jensen & Meckling, 1976). The agency theory proposes that the BOD plays a critical role in the supervision and control of management, as well as addressing the conflicts raised by the agency (McColgan, 2001). The perspective of agency theory is one of the major theories used to explain the effect of BOD diversity on company performance. From this theoretical perspective gender diversity in the BOD is considered to be one of the most significant corporate governance tools for firms (Gallego et al., 2010). In this context, gender diversity in the BOD works as a better control, as a wider group of perspectives,

insights, and opinions may increase the independence of the BOD (Nielsen & Huse, 2010). Thus, women in boardrooms can be a tool that minimizes costs associated with agency's conflicts (D. A. D. A. Carter et al., 2003; Gallego et al., 2010). Former studies also indicate that vigorous corporate governance can enhance the firm's performance by minimizing agency conflicts and improving BOD's oversight (D. D. Carter et al., 2007). Moreover, several studies used agency theory when they examined gender diversity on the board of directors and its impact on the performance of the firm (Abad et al., 2017; Kiliç & Kuzey, 2016; Terjesen et al., 2016; Triana & Asri, 2017; Vafaei et al., 2015).

3. Literature review and hypotheses

Concerns have been raised about improving the efficiency of corporate governance in general and the BOD in particular because of the financial scandals and the lack of business growth in the last decade, as well as the 2008 financial crisis (Reguera-Alvarado et al., 2015). In this context, the diversity of the BOD has been believed to be a tool for such efficiency. According to (Erhardt et al., 2003; Jackson et al., 2003), diversity can be classified into two categories: demographic (i.e. gender, age, ethnicity, and race) and cognitive (i.e. knowledge, education, values, and perception). Most of the studies have focused on the demographic side or observable diversity, with the existence of women in the BOD being one of the observable traits of the BOD. As women have become a large percentage of the workforce, firms are experiencing significant changes in their pools of potential nominees. Because the BOD is a clear reflection of the diversity of the manpower, this variation may also affect the structuring of the firm's BOD (Kiliç & Kuzey, 2016).

As women have become a large percentage of the manpower, firms are experiencing significant changes in their pools of potential nominees (Erhardt et al., 2003). Because the BOD is a clear reflection of the diversity of the manpower (Mahadeo et al., 2012), this variation may also affect the structuring of the firm's BOD (Kiliç & Kuzey, 2016).

Good corporate governance is concerned with the development of tools and practices that strengthen the accountability of the firm's managers and improve company performance (Khan, 2011). As stated by (Gallego et al., 2010), diversity in the BOD is one of the most significant governance cases and is believed to be an integral part of good corporate governance. Generally speaking, debates on diversity in the BOD have, at the most, concentrated on two sides: economic and moral cases (Campbell & Minguez-Vera, 2008).

Based on an ethical view, the under-representation of women in the BOD could be considered as discrimination. The argument of this view is that exclusion of women directors from high positions in corporations on a gender basis is considered to be an immoral act (Gallego et al., 2010). On the contrary, the economic view is based on the assumption that corporations that are unsuccessful in choosing the most eligible BOD nominees are detrimental to their financial performance (Campbell & Minguez-Vera, 2008).

Former studies indicate several arguments that support the positive impact of women directors on the company's performance. First, diversity in the BOD means that diversified directors can increase the profitability and value of their firms by adding unique features, capabilities, and skills to the BOD site (D. D. Carter et al., 2007). Second, diversity in the BOD can also improve the ability to solve problems by introducing various perspectives and insights into the BOD discussions (Nielsen & Huse, 2010). In this vein, various views may provide alternatives for decision-makers and allow for more precise considerations of these alternatives (R. R. Adams & Ferreira, 2004; Huse & Solberg, 2004; Nielsen & Huse, 2010). Also, diversified BOD with different genders, various skills, and various cultural backgrounds may offer more strategic options, thus leads to improving company performance (Ujunwa et al., 2012). In the same vein, diverse-BOD enhances the process quality of decision-making, whether at the individual level or the group level (Terjesen et al., 2009). The presence of women in the BOD generates an advantageous and more detailed decision-making process for firms because women often exert more effort on their duties compared to male counterparts (Huse & Solberg, 2004; Pastore & Tommaso, 2016).

Furthermore, the attendance rate of the BOD meeting was considered to be higher for women directors compared to male directors, and therefore their existence in the BOD had a significant and positive effect on the attendance rate of male directors at the BOD meetings. Therefore, BOD considers more women directors to be more efficient and to have a good attendance rate (R. R. Adams & Ferreira, 2004; Oxelheim et al., 2006).

Moreover, corporate diversity, in general, and BOD diversity can foster a better understanding of the marketplace, given that the marketplace, in particular, is also becoming more diversified (D. A. D. A. Carter et al., 2003). Therefore, this signifies that a company is in a good position to meet the needs of a diversified marketplace and to understand the business environment (Miller & del Carmen, 2009). Women directors are also in a better position to link their firms with women consumers, women workers, and women in the community because of their various life experiences and perspectives. Furthermore, adding more number of women directors to BOD can improve innovation by bringing new insights, perspectives, skills, and backgrounds to the BOD site (Miller & del Carmen, 2009; Torchia et al., 2011).

Empirical evidence about the impact of gender diversity in the BOD on the company performance has been indecisive, conflicting, and, sometimes, disagreeing. This conflicting in findings of the former studies may be assigned to variations in timeframes (D. D. Carter et al., 2007), various regulatory and legal contexts (Sabatier, 2015), lack of control factors, restricted and non-harmonized measurements of performance (Terjesen et al., 2015) and unconsidered potential issues of endogeneity between gender diversity and company performance (Campbell & Minguez-Vera, 2008).

Research studies that have examined the effect of gender diversity on company performance have therefore shown a positive impact for gender diversity on company performance (Alabede, 2016; D. A. D. A. Carter et al., 2003; Erhardt et al., 2003; Kılıç & Kuzey, 2016; Lückerath-Rovers, 2013; Smith et al., 2006; Triana & Asri, 2017). Whereas other research has shown no such effect for gender diversity on company performance (Chapple & Humphrey, 2014; Ferrari et al., 2018; Ionascu et al., 2018), and also few other studies reported negative effect for gender diversity on company performance (Renée B. Darmadi, 2013; Daunfeldt & Rudholm, 2012; Renée B. Adams & Ferreira, 2009).

In line with this, (Renée B. Renée B. Adams & Ferreira, 2009) indicated that the proportion of women in BOD negatively impacts the performance of USA firms. Despite the presence of women in the BOD improves the BOD oversight, similar findings reported by (Darmadi, 2013) from a sample of Indonesian firms. The same results were documented for the sample of large Malaysian companies by Abdullah & Ismail (2013), also Kilic (2015) reported similar findings where gender diversity negatively affects the performance of Turkish corporations. In the same vein, the effect of gender diversity in the BOD on the performance of Nigerian companies was examined and the results pointed out that gender diversity negatively impacts the company performance (Ujunwa et al., 2012).

On the other hand, some studies examined the impact of gender diversity in the BOD on firm performance and showed that gender diversity in the BOD has an insignificant effect on firm performance, as reported by the sample of the Bucharest Stock Exchange (Ionascu et al., 2018). Also, Menteş (2011) found an insignificant relationship between gender diversity in the BOD and firm performance measured by ROA using a sample of companies from the Industrial Index in the Istanbul Stock Exchange. Similar findings from the sample of Nasdaq OMX Stockholm firms also confirmed that women in the BOD have an insignificant effect on corporate performance (Lango, 2018).

While, Kılıç & Kuzey (2016) investigated the impacts of gender diversity in the BOD and its effect on the Turkey-based corporation using different gender measurements (proportion of women in the BOD, dummy variable for women or not, and the Blau index); the results showed that women in BOD improved firm performance (measured by ROA and ROE); the same findings have been reported by (Triana & Asri, 2017) in the context of Indonesia that women directors have a positive and significant impact on corporate performance. Also, D. A. D. A. Carter et al. (2003)

examined the existence of women in the BOD and its impact on the company value on the sample of Fortune 1000 companies; the findings showed that the existence of women in BOD has a positive effect on the company value. Therefore, hypotheses are stated as follows:

H1a. The existence of women members in the BOD has a significant and positive impact on company performance.

H1b. The percentage of women members in the BOD has a significant and positive impact on company performance.

4. Study design and data

4.1. Data gathering

This research aims to examine whether gender diversity in BOD improves firm performance. The initial research sample includes non-financial¹ corporations listed in the Palestine Stock Exchange from 2008 to 2015. Firms that were listed after 2008 were excluded from the research sample and those corporations that were identified during the study period were also excluded. Firms with considerable missing data were also excluded. Data related to the variables considered in this study (financial and BOD factors) are obtained from annual reports issued by firms and the Palestine Stock Exchange. According to Tadawul, the monthly statistical newsletter issued by Palestine Exchange in December 2016 states that there are 48 firms (Palestine Exchange, 2016) and distributed as follows: Banking and Financial Services (7 firms), Insurance (7 firms), Investment (9 firms), Industry (13 firms) and Services (12 firms).

After applying the above-mentioned conditions and because this study is aimed at non-financial firms that have left us with 25 firms in two sectors, i.e. service and industrial sectors. Also, firms are listed after the start date of 2008; firms delisted through the period of study, and firms with considerable missing data are excluded. Therefore, after filtering, the final sample was seven firms in the service sector and nine firms in the industrial sector, which left us with a total of 16 firms and 128 observations.

4.1.1. Endogeneity test

To control the potential of endogeneity issue, former studies used two-stage least squares (2SLS) estimation. Similarly, this study used 2SLS in the analysis guided by these studies (Renée B. Renée B. Adams & Ferreira, 2009; D. A. D. A. Carter et al., 2003; Kılıç & Kuzey, 2016).

First, diagnosis tests for 2SLS were employed to assess whether the endogenous factor in 2SLS regression is indeed exogenous through Durbin-Wu-Hausman and Wu-Hausman² with a null hypothesis that the factor must be treated as an exogenous factor. Thus, the statistical significance of these tests indicates that the factor under consideration must be treated as endogenous. Second, the over-identification restriction test to assess whether the model is misspecified by Sargan and Basman test with a null hypothesis that the model is not misspecified, and instruments are uncorrelated with the error terms. Failing to reject a null hypothesis means that the model is not misspecified, and the employed instruments do not correlate with the error terms (Baum et al., 2003)

5. Measurement of variables

Former related studies to the current study used a variety of measurements to gauge the financial performance of a corporation which is a dependent variable in this study, such as return on assets (ROA), return on equity (ROE), and Tobin's Q. Essentially, such measurements of financial performance can be classified into two sets: performance measurements based on accounting data and performance measurements based on the market data. This research employed measurements based on the accounting data for performance, i.e. profitability ratios of the firm (Renée B. Kılıç & Kuzey, 2016; Lückerath-Rovers, 2013; Renée B. Adams & Ferreira, 2009; Ujunwa et al., 2012). These

ratios were mostly used to signal the company's ability to generate profit based on accounting-profit and return to stockholders (Kılıç & Kuzey, 2016).

For the independent variables included in this study is the representation of women in the BOD, where the study utilized two proxies to gauge it: (1) the dummy was used to measure the existence of at least one woman in the BOD, where the value is 1 when one woman at least exists in the BOD, otherwise, the value is zero (Kılıç & Kuzey, 2016); (2) the percentage of women members in the BOD is computed dividing the number of gross women in the BOD by the gross members of the BOD (R. R. Adams & Ferreira, 2004; Kılıç & Kuzey, 2016; Reguera-Alvarado et al., 2015). Also, this paper uses many control factors that have been found statistically significant in the literature, namely, BOD size, independence of BOD, Company size and Leverage (Renée B. Bannouri et al., 2018; Lückers-Rovers, 2013; Renée B. Adams & Ferreira, 2009)

6. Results and discussion

Table 1 and 2 presents the descriptive statistics about the variables included in this study, from which it can be seen that leverage in Palestinian firms is not very high at around 32%, whereas the average performance also is about 3% for both measures, ROA and ROE. As far as the BOD traits, they have on average of about 9 members in their BOD size, which is not large and with 5 members at the minimum and 15 at maximum, and their BOD independence is quite high on average of about 72% and with zero independence at the minimum and 100% independence at the maximum. Furthermore, descriptive statistics show that the average presence of women BOD is not high at about 8%, and 43.75% of firms included in this study have at least one woman in their BOD. Finally, in the sectors concerned, the study sample was distributed to 56.25% of industrial firms and 43.75% of service firms.

Variables as identified in Table 1.

T-test from Table 3 shows that Palestinian Industrial firms use less debt and are smaller but better-performed compared to service firms on average. Whereas these firms have more women on their BOD, they have less BOD size and less independence in their BOD on average compared to service firms. On the other side, comparing means show that Palestinian firms with at least one woman in their BOD are distinguished by a higher debt ratio, large in size, better performance, more independence in their BOD, but there is no difference in their BOD size.

Table 4 presents the correlation matrix of all factors incorporated in this research. The findings show that the association between dependent variables and independent factors ranges between $-0.36.5\%$ and $0.05.5\%$. Moreover, the findings of the bivariate association analysis indicate that the issue of multicollinearity is not present, as the coefficients of the association are less than 80% according to Gujarati (1995), a similar analysis of variance inflation factors (Table 5) show multicollinearity non-presence as their values do not exceed 10.

Variables as identified in Table 1.

6.1. Testing hypotheses

Table 6 offers the findings of the 2SLS analysis used to control the endogeneity issue of the employed instrumental variables. Table 6 presents the findings related to testing endogeneity to assess whether the endogenous factor in the 2SLS regression is indeed exogenous. The test shows that the null hypothesis can be rejected as these tests are significant at 1% in all models. Therefore, gender diversity cannot be treated as exogenous. Also, the findings in Table 6 show that the null hypothesis of Sargan and Basman's tests of over-identification cannot be rejected as P-value is insignificant in all models. Therefore, this verification of the validity of the instruments employed, i.e. the model does not suffer from a misspecification issue. This also shows that the findings by estimation of OLS are inconsistent with the endogeneity issue and support the estimation of the instrumental variable method estimation such as 2SLS.

Table 1. Measurement of variables

Variables	Measurement
Return of assets	ROA = net income divided by total assets
Return of equity	ROE = net income divided by total common share
BOD size	boardSIZE = Total number of members in the BOD
Independence of BOD	Independence = Number of external directors divided by the total number of members in the BOD
Company size	LOGaaset = natural logarithm of total assets
Leverage	ToasTLIB = total liabilities divided by total assets
Gender diversity	RATIO woman = Number of women directors divided by the total number of members in the BOD GENDR = dummy takes one for the presence at least one woman in the BOD otherwise zero.
Industry	Sector = dummy one for industrial firms and zero for services firms

The analysis result shows that the presence of women in the BOD with different proxies (RATIOwoman, and gender) has a positive significant effect on the firm performance in both measures—ROA and ROE, so that the findings are consistent with previous studies (Arioglu, 2018; D. D. Carter et al., 2007; DUC & HUY, 2015; Kılıç & Kuzey, 2016; Sabatier, 2015), whereas few other studies (Bøhren & Strøm, 2010; Boubaker et al., 2014) found that gender diversity in 2SLS has a negative effect which is contrary to the findings of the current study.

The leverage ratio has a negative significant effect on the firm performance in both measures—ROA and ROE, similar to Xing et al. (2017), whereas the company's size has a positive significant effect on the firm's performance in both measures—ROA and ROE; these findings are consistent with (Vafaei et al., 2015). The independence of BOD has a negative relationship with the firm performance in both measures—ROA and ROE, but the relationship is insignificant in all models in Table 6; these findings are similar to Kılıç and Kuzey (2016). The size of BOD also has a negative relationship with the firm performance; such relation is insignificant in models 1 of ROE, and the rest of the models are negative and statistically significant.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ToasTLIB	128	.3217319	.1711684	.0413066	.7700855
LOGaaset	128	7.397066	.6079398	6.105274	9.025366
ROA	128	.0340738	.1044679	-.6219246	.2610883
ROE	128	.0333955	.1850732	-1.209191	.3175894
independence	128	.7249772	.3104815	0	1
boardSIZE	128	9.25	2.487765	5	15
RATIOwoman	128	.081797	.1118914	0	.4
SECTOR	Frequency		Percent		Cum.
Service	56		43.75		43.75
Industrial	72		56.25		100.00
Total	128		100.00		
GENDER					
NON-Woman	72		56.25		56.25
Woman	56		43.75		100.00
Total	128		100.00		

Table 3. T-test for comparison of Means for variables incorporated in the study regarding sector and gender

T-test for equality of means

	Sector	N	Mean	Mean difference	t-statistic
ToasTLIB	Industrial	72	.2557	-.15087	-5.484 ***
	Service	56	.4066		
LOGaaset	Industrial	72	7.3007	-.22029	-2.059 **
	Service	56	7.5210		
ROA	Industrial	72	.0426	.01942	1.044
	Service	56	.0232		
ROE	Industrial	72	.0503	.03860	1.172
	Service	56	.0117		
RATIOwoman	Industrial	72	.0926	.02475	1.244
	Service	56	.0679		
boardSIZE	Industrial	72	8.5000	-1.71429	-4.101 ***
	Service	56	10.2143		
Independence	Industrial	72	.5983	-.28953	-5.886 ***
	Service	56	.8878		

T-test for equality of means

	Gender	N	Mean	Mean difference	T-statistic
ToasTLIB	Woman	56	.4078	.15300	5.581***
	NON-Woman	72	.2548		
LOGaaset	Woman	56	7.3269	-.12466	-1.152
	NON-Woman	72	7.4516		
ROA	Woman	56	.0406	.01162	.623
	NON-Woman	72	.0290		
ROE	Woman	56	.0521	.03331	1.010
	NON-Woman	72	.0188		
boardSIZE	Woman	56	9.2500	0.00000	0.000
	NON-Woman	72	9.2500		
Independence	Woman	56	.8719	.26114	5.178 ***
	NON-Woman	72	.6107		

7. Discussion

In summary, the analysis of 2SLS, the positive relationship between the different proxies of gender diversity and performance is also in line with previous studies (Arioglu, 2018; D. D. Carter et al., 2007; DUC & HUY, 2015; Kılıç & Kuzey, 2016; Sabatier, 2015), and are not consistent with few other studies (Bøhren & Strøm, 2010; Marinova et al., 2010; Xing et al., 2017). Such a positive relationship could be seen in the context of agency and resource independence theories. According to the agency theory, the BOD with gender diversity is more effective in monitoring managerial behaviors and advising management, thus working towards alignment of interests between managers and owners, which will lead to improved performance (Terjesen et al., 2009). On the other side, the view of resource independence stated that the diversity of BOD brings various skills, backgrounds, views, experiences, which could lead to better creativity and innovation in business, besides offering good external network connections (Ferreira, 2010). Thus,

Table 4. Correlation matrix

Variables	1	2	3	4	5	6	7
1)ROA	1						
2)ToasTLIB	-.361**	1					
3)LOGaaset	.365**	-.022	1				
4)GENDER	.055	.445**	-.102	1			
5)RATIOwoman	.072	.205*	-.027	.832**	1		
6)boardSIZE	-.019	.102	.589**	0.000	-.024	1	
7)independence	.331**	.312**	.435**	.419**	.433**	.353**	1
Variables	1	2	3	4	5	8	9
1)ROE	1						
2)ToasTLIB	-.366**	1					
3)LOGaaset	.353**	-.022	1				
4)GENDER	.090	.445**	-.102	1			
5)RATIOwoman	.102	.205*	-.027	.832**	1		
6)boardSIZE	.054	.102	.589**	0.000	-.024	1	
7)independence	.299**	.312**	.435**	.419**	.433**	.353**	1

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed). Variables as identified in Table 1.

such diversity of viewpoints can improve overall creativity and invention concerning problem-solving (Terjesen et al., 2016).

For the control variables, the results of size of BOD negative in all methods are negative which agrees with other studies (Mak & Kusnadi, 2005; Terjesen et al., 2016); this could result in a large BOD being ineffective due to the cost of coordination and communication and free-riders problem, making it largely ineffective to perform its two major roles supervisory and advisory roles (Jensen, 1993). The findings have shown that the relationship between debt ratio and firm performance is negative and significant in all model specifications. This finding is consistent with the theory of pecking order, where it is suggested that the relationship between the leverage ratio and the firm profitability is negative (Fama & French, 2002), whereas the rising the debt ratio increases the possibility of financial bankruptcy, which will lead to an increase in the cost of obtaining a resource, thus reducing corporate profitability (Doğan, 2013). The analysis shows that firm size has a positive relationship with firm performance, findings could be explained by the fact that large corporations are more efficient as they use scale economies, and also the benefits of large corporation stem from its market power and ability to access the capital markets (Doğan, 2013; Vishwakarma, 2017). The independence of the BOD a negative and insignificant effect on the performance.

Table 5. Variance inflation factors

Variable	VIF	1/VIF
Indepence	1.82	0.548907
LOGaaset	1.82	0.550430
boardSIZE	1.59	0.629348
RATIOwoman	1.34	0.747738
ToasTLIB	1.16	0.861065
Mean VIF	1.55	

Table 6. Results of two-stage least squares (2SLS)

variable	ROE-2SLS		ROA-2SLS	
	model1	model.2	model1	model.2
RATIOwoman	3.12 (1.72)**		1.86 (1.85)*	
GENDER		.438 (2.78)***		.261 (3.11)***
ToasTLIB	-.964 (-2.81) ***	-1.12 (-4.00) ***	-.561 (-2.81)***	-.656 (-4.06)***
LOGaaset	.221 (2.16)**	.186 (3.41) ***	.141 (2.49)**	.1195 (4.16)***
boardSIZE	-.0190 (-1.25)	-.023 (2.24) ***	-.0167 (-1.79)*	-.0194 (-3.10)***
Indepence	-.514 (-1.11)	-.135 (-0.97)	-.309 (-1.19)	-.082 (-1.07)
constant	-.853 (-1.97)**	-.783 (-2.81) ***	-.504 (-2.14)**	-.4623 (-3.17) ***
SECTOR	Yes	Yes	yes	yes
year dummies	Yes	Yes	yes	yes
Durbin	13.89 ***	17.65 ***	18.77 ***	25.98 ***
Wu-Hausman	13.87 ***	18.34***	19.73 ***	29.59 ***
Robust score	6.74***	5.94**	7.84 ^a ***	9.19 ***
Robust regression	6.12 **	6.79**	9.20***	12.28***
Sargan	4.34 (.227)	5.305 (.1508)	4.07 (.254)	4.82 (.185)
Basman	3.87 (.276)	4.77 (.189)	3.62 (.306)	4.32 (.229)
Score	2.28 (.5165)	1.91 (0.592)	2.63 (.453)	2.51 (.4733)

***p < .01, ** p < .05, * p < .1 significant levels, respectively, variables as identified in Table 1.

8. Conclusion

Based on the related empirical literature review of the effect of gender diversity in the BOD on the firm performance, this research analyzes the impact of gender diversity in the BOD on the performance of the Palestinian firm using estimation 2SLS method. This method was taken into account the sources of endogeneity that may exist in the relationship between gender diversity and firm performance. The findings show that the representation of women in the BOD of Palestinian companies is still low at about 8%. Besides, the results show that the percentage of women is high in industrial companies compared to service firms, whereas with at least one woman in their BOD is distinguished by a higher debt ratio, large in size, better performing, more independent in their BOD, but there is no difference in their BOD size. Also, this study finds that the impact of gender diversity on Palestinian performance corporations depends on the methods of analysis. Gender diversity has a positive and statistically significant effect on firm performance in 2SLS. This finding is consistent with agency theory, women in BOD are more effective in monitoring the manager's behaviors and actions. By the resource dependence theory, women contribute to the efficiency of firms by bringing different external links, skills, and backgrounds.

Overall, the findings propose that the presence of women in the BOD is still modest and has an effect on the firm performance (ROA and ROE) in the context of the Palestinian business environment, and the findings are in line with other business environments like the USA (Renée B. Renée B. Adams & Ferreira, 2009), Turkey (Kılıç & Kuzey, 2016), Denmark (Marinova et al., 2010; Smith et al., 2012). French (Boubaker et al., 2014).

For future studies, it is therefore proposed to include other control variables and to use other instrument variables to analyze the impact of gender diversity on the Palestinian firm performance, as well as to examine the effect of diversity on the Palestinian firm performance in the sample of financial firms (banks, investment firms, and insurance firms) in Palestinian market to verify the applicability of predictions of corporate governance theories. In addition, using panel model estimate the gender diversity on the board of directors and its impact on the Palestinian financial performance of the firm. Fixed effect—instrumental variable panel estimation accounted for the omitted factors (heterogeneity) that may be exist in the relationship of BOD and firm's performance, and instrumental variable addressed source of potential endogeneity from reverse relation as the gender diversity could effect on the performance of corporation and higher performance firms hire more women on their BOD (Wintoki et al., 2012; Zheka, 2006)), not as 2SLS model which just account to endogeneity issue of reverse causality. Also, future studies may use a generalized method of moment (GMM) panel estimator to analyze the effect of gender diversity of the BOD on the company performance. Using the GMM technique can build up instrumental factors for possible endogenous factors. First-differencing eliminates the possibility of unobservable heterogeneity bias. Besides, the GMM regression copes well with the endogeneity issue that can happen when independent and dependent variables are jointed in reciprocal relation. The GMM provides more robust estimation to deal with endogeneity issue.

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Notes

1. Financial firms are differing in some aspects; like as heavily regulated than non-financial, financial sectors risky as they in general rely on depositor's money, and financial companies are more leveraged than non-financial counterparts, etc. (Mehran & Mollineaux, 2012).
2. These are two test for endogeneity as indicated by (Baum et al., 2003). "The difference between the Durbin and Wu-Hausman tests of endogeneity is that the former uses an estimate of the error term's variance based on the model assuming the variables being tested are exogenous, while the latter uses an estimate of the error variance based on the model assuming the variables being tested are endogenous" (Stata, n.d.). Under the null hypothesis that the variables being tested are exogenous, both estimates of the error variance are consistent. furthermore, former studies reported similar two tests when they tested an endogeneity 2sls (Albulescu & Goyeau, 2016; Aniceto, 2006).

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