

The Relationship between Firm Performance, Gender, and Nationality of the UK Boards

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Abstract: This study examines the relationship between firm performance and board diversity. Board diversity is measured in terms of gender and nationality diversity in the board of directors' composition. The study uses a sample of non-financial companies listed on the London Stock Exchange (LSE) between the period of 2017 and 2019. The result shows that firms whose board composition is made up of more women and foreign directors have better financial performance than their counterparts. This finding supports the contention that women directors have different beliefs, values, and abilities of problem-handling, bringing thought diversity to management, which contributes to better firm performance. Besides that, more foreign directors on the board also add value to firm performance as they bring better bring more viewpoints, exclusive and expertise information which contributes to a better boardroom as well as access to international networks. Taken together, this study supports the notion that board diversity brings a better supervision mechanism, improved board productivity and expertise, and richness of external information and networks, thereby improving the company's performance to some extent. Our results are robust to sub-sample of FTSE 100 and FTSE 350 companies, as well as when alternative measures of board diversity are used in the study. The sensitivity analyses performed also indicate that the positive effects of board diversity are sensitive to alternative measures of firm performance. This study fills the gap in the literature by using a larger set of UK samples and examines the issue in a more recent period. This study also adds to the very limited research using earnings per share to measure firm performance.

Keywords: Firm performance, women, gender diversity, foreign directors, UK, board of directors, Return on Assets, Tobin's Q, Earnings Per Share, Return on Equity, ROA, ROE, EPS.

1. INTRODUCTION

Over the past decade, board diversity attracted a growing interest of academic researchers, decision-makers, and politicians alike (Kouki, 2021; Zattoni et al., 2023). Element of diversity can be measured on several dimensions, such as educational background, age, gender, nationality, and industrial experience (Gordini and Rancati, 2017). In recent years, the proportion of women on board has attracted growing attention (Fernández-Temprano and Tejerina-Gaite, 2020; Kouki, 2021). Moreover, developed countries recommended that organisations should increase their female representation on the board to the point of parity. The contention is that women offer additional perspectives to board decision making which help increase organisation performance (Gordini and Rancati, 2017). However, it was also argued that having more female directors may lead to conflict and negative influence in the boardroom if the decision to appoint women as board members is motivated solely by the law or for reasons of equality rather than the quality of the candidate (Gordini and Rancati, 2017). From the corporate governance literature

point of view, women's contribution in the boardroom can be evident from various firm performance perspectives including improved firm's corporate social responsibility, reduced corporate fraud, higher level of innovation, and better monitoring (e.g. Beji et al., 2021; Griffin et al. 2021; Sarhan et al., 2019; Sun et al., 2019).

Various governments have introduced governance reforms to encourage women's participation in the boardroom (Brahma et al., 2021). Countries such as Norway, Italy, Germany, Iceland, France, Belgium, Kenya and Finland introduced a legislative quota, which required companies to appoint 30% to 40% females on boards (Brahma et al., 2021). On the contrary, the United Kingdom (UK) adopted a voluntary approach (Isidro and Sobral, 2015). In 2011, the UK Financial Reporting Council (FRC) published a report on the proposals on gender diversity with the aim to remove barriers against female participation in board decision-making within corporations. The recommendations permitted the board of companies included in FTSE 100 to voluntarily adopt 25% minimum female as a quota (FRC, 2011). In 2017, the Hampton Alexander Report published by UK FRC recommended FTSE100 firms should have 33% women on board by 2020. Consequently, The Female FTSE Board Report (2020) shows that in 2016 the board female directors' representation on the FTSE 100 stood at 26% and has raised to 34.5%

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steadily in 2020. Therefore, the target is achieved largely, although the recommendations of the government were voluntary in nature (Kouki, 2021). In addition, a survey report by Deloitte published recently in 2022 documented that global average of women in the boardroom had showed positive developments progress in 2021, with an increase of 2.8% from 2019 (Konigsburg and Thorne, 2022). Hence, this begs the essential question of the implications of whether the board having more female directors contributes to improved company's performance.

Furthermore, this study also examines board nationality diversity. Corporations are going global, the same as their boardrooms. From 1995 to 1999, the nationality diversity ratio in the boardroom had risen from 39% to 60% (Staples, 2007). The internationalisation of companies led to boardrooms becoming more and more international likewise (Hooghiemstra et al., 2019; Staples, 2007). Therefore, companies could benefit from their directors obtaining connections, information, and expertise from their home countries to improve business internationalisation (Carpenter et al., 2001; Ruigrok et al., 2006). Further, Hooghiemastra et al. (2019) illustrated that the existence of foreign directors in companies' boardroom has both beneficial and unfavourable impacts to the ability of the boardroom to supervise management effectively. Since foreign directors are more independent from the boardroom, they are better able to scrutinise and monitor management. However, this benefit might be impeded by a lack of understanding of rules and languages.

Previous research on board gender and nationality diversity so far produced mixed findings. Hence, the primary purpose of this study is to fill this gap in the literature by examining the implications of board gender diversity and nationality diversity on firm performance. The result shows that firms whose board composition is made up of more women and foreign directors have better performance than their counterparts. This finding supports the contention that women directors have different beliefs, values, and abilities of problem-handling, bringing thought diversity to management, which contributes to better firm performance. Besides that, more foreign directors on the board also add value to firm performance as they brought in more viewpoints, exclusive and expert information which contributes to a better boardroom as well as access to international networks. Taken together, this study supports the notion that board diversity brings a better supervision mechanism, improved board productivity and expertise, and richness of external information and networks, thereby improving the company's performance to some extent. Our results are robust to subsample of FTSE 100 and FTSE 350 companies, as well as when alternative measures of board diversity are used in the study. The sensitivity analyses performed also indicate that the positive effects of board diversity are sensitive to alternative measures of firm performance used in the analyses (i.e. Tobin's Q, Return on Assets (ROA), Return on Assets (ROE) and Earnings Per Share (EPS)).

This research makes three principal contributions to the existing studies and understanding of board gender and nationality diversity. This study contributes to the small pool/limited studies with non-US data because most research

on company performance and board diversity was more likely to be conducted in the US context, but the UK perspective is limited. The existing UK studies on gender diversity only focuses on a smaller set of samples such as small and medium enterprises (SMEs) (Shehata et al., 2017), financial companies (Agyemang-Mintah and Schadewitz, 2019), FTSE 100 (Brahma et al., 2021) and FTSE 350 (EmadEldeen et al., 2021; Arayssi et al., 2016; Gregory-Smith et al., 2014) samples only. Whereas in terms of board nationality, the study adds evidence to prior UK studies by EmadEldeen et al. (2021), Adam and Baker (2020) and Honing (2021). Hence, this study provides evidence based on the latest UK listed companies' dataset and based on a larger sample: all non-financial companies listed on LSE during the 2017 and 2019 financial periods. In addition, the study also test the sensitivity of the results to alternative definitions of board gender diversity and nationality diversity, as well as the different measures of firm performance using, namely Tobin's Q, ROA, EPS and ROE. Specifically, this study adds to the very limited studies using EPS to measure firm performance.

The remainder of this study is structured as follows. In the next section, this study reviews the existing empirical evidence, followed by the theoretical underpinnings and description of the sample and data. Next is the description of the research methodology. The study then offers the main results, discussion, and sensitivity analysis. Finally, this study provides the conclusions, limitations and recommendations for future research.

2. REVIEW OF PRIOR LITERATURE AND HYPOTHESES DEVELOPMENT

Despite the voluminous literature on the relationship between the structure of the company's board and firm performance, empirical evidence on board diversity and its influence on a corporation's financial performance is still in its infancy stage and requires further research (Arora, 2021). The issue of the diversity of board members can be divided into two parts, cognitive (non-observable) and demographic (observable). Generally, cognitive diversity implies education, knowledge, value, personality characteristics, affection, and perception whereas examples of demographic diversity generally refer to age, gender, and race (Erhardt et al., 2003). Most studies researching the relationship between diversity and its influence on performance concentrate on demographic or observable diversity (Erhardt et al., 2003).

2.1. Board Gender Diversity and firm Performance

In terms of gender diversity, it is claimed women directors have different beliefs, values, and abilities of problem-handling, bringing thought diversity to management, which contributes to better firm performance, as compared to men counterparts. Furthermore, the communication approaches of females are likely to be more process-oriented and participative (Daily and Dalton, 2013). Hence, their experience, expertise, and skills should be valued. Women's representation on board was found to strongly affects the performance of small firms, where the influence of female directors becomes more prevalent, especially in environments or countries with weak corporate governance (Chen et al., 2023).

Findings from prior literature on the association of company performance with board diversity are mixed. Some studies have found that board diversity either negatively affects firm performance (e.g. Adams and Ferreira, 2009; Fauzi and Locke, 2012; Darmadi, 2011) or positively affects firm performance (Raddant and Takahashi, 2022; Terjesen et al., 2016; Erhardt et al., 2003; Campbell and Mínguez-Vera, 2008; Miller and del Carmen Triana, 2009; Perryman et al., 2016; Nguyen and Faff, 2007; Wang and Clift, 2009; Low et al., 2015; Terjesen et al., 2016; Liu et al., 2014; Li and Chen, 2018; Herdhyainta et al., 2021; Kim et al., 2020), given the different regulatory environment and cultural norms of the country under study. Other studies that reported a positive effect of women directors on firm performance are Khan and Abdul Subhan (2019) in Pakistan, Song et al. (2020) in North America, Arora (2021) in India, Green and Homroy (2018) Europe, Ahmadi et al. (2018) in France, Julizaerma and Sori (2012) in Malaysia, Chen et al. (2023) in Taiwan, and Kılıç and Kuzey (2016) in Turkey. On the other hand, Schwizer et al., (2012), Robb and Watson (2012), Hassan and Marimuthu (2016), Rose (2007), and Marinova et al. (2016) found no evidence to prove that board women representation affects company performance. While many of these studies focuses on non-financial companies, Cardillo et al. (2021) and Karavitis et al. (2021) found that the same finding actually extends to the financial sector.

However, only a few studies are based on UK evidence. Study by Brahma et al. (2021) reported a positive and significant relationship between gender diversity and firm performance. However, the results become highly significant and unequivocal when three or more females are appointed to the board compared to the appointment of two or less females. This study was based on FTSE100 companies listed in the LSE during the 2017 to 2019 periods. Moreover, this study also shows that the level of education and age of women with executive positions in boardrooms significantly affect their performance after the appointment. A UK study by Conyon and He (2016) based on data from 2007 to 2014 suggest that the percentage of a corporation's board female directors positively affects financial performance, using quantile regression. Their study also demonstrated that relative to low-performance companies, women directors have a better effective influence in higher performance corporations. Similarly, EmadEldeen et al. (2021) used a sample of FTSE 350 companies during the period from 2000 to 2016 to illustrate that gender diversity in the boardroom positively influences company performance. Arayssi et al. (2016) also pointed out that female director enhances firm performance. Their sample consists of all listed corporations on the FTSE 350, period from 2007 to 2012.

Brahma et al. (2021) and Liu et al. (2014) show that raising the number of women in the boardroom also increases firm performance. In addition, Agyemang-Mintah and Schadewitz (2019) examine whether female diversity in UK financial institutions impacts company performance using 63 financial companies over a 12-year period from 2000 to 2011.

By contrast, Shehata et al. (2017) investigate the association between female diversity in the boardroom and company performance in SMEs (small and medium-sized companies) in the UK, using 35798 corporations, from the period 2005

to 2013, and their findings suggest a significant negative relationship between these two variables. The possible explanation for this negative relationship is that dissimilarity in the gender of the corporate board members may cause a lack of sufficient unity and cohesion, give rise to team conflicts and thus impede the quality and speed of decision making (Conyon and He, 2017).

On the other hand, Gregory-Smith et al. (2014), using all listed companies in FTSE350 from 1996 to 2011, demonstrate that they find no evidence to prove that board gender diversity improves company performance. Overall, the prior empirical evidence remains ambiguous. Furthermore, there is still a lack of such studies within the UK context using more recent data and a larger sample. Therefore, the first hypothesis is stated as follow:

Hypothesis 1: There is a significant positive relationship between board gender diversity and firm performance.

2.2. Board Nationality Diversity and Firm Performance

The composition of firms' board directors was significantly affected by globalisation and competitive pressures (Harjoto et al., 2019). Therefore, companies with foreign directors could benefit from their board directors obtaining connections, information, and expertise from their home countries to improve business internationalisation (Carpenter et al., 2001; Ruigrok et al., 2006), in which this better boardroom or management system could enhance company performance (Ferrero-Ferrero et al., 2015).

Nationality diversity of the board members expands the behavioural and cognitive range in the boardroom and improves information resources (Harjoto et al., 2019). According to the resource independence theory, board nationality diversity improves management's ability to make better decisions because this diversity offers different expertise, exclusive information, perspectives and viewpoints (Ruigrok et al., 2007; Ferrero-Ferrero et al., 2015; Johnson et al., 2013). The diversity also covers a mixture of languages, beliefs, culture, lifestyles, and experiences. The foreigner's presence on the firm board also has a sensitive role in company disclosure and management behaviour (Zaid et al., 2020).

Literature on the effect of board nationality diversity is inconclusive. Honing (2021) found that more nationality diversity in the boardroom leads to higher company performance. Their sample included 277 listed corporations from the Netherlands, The UK, and Germany. Also, Nielsen and Nielsen (2012) found that the board nationality diversity affects the company's performance positively. Their sample included 146 listed Swiss companies, in the period from 2001 to 2008. Furthermore, they also implied that when nationality diversity occurs in highly internationalised companies, longer-tenured organisations and generous environments, the board nationality diversity influences performance stronger. In the same year, Ujunwa (2012) shows the same result. Their research focused on 122 listed companies between 1991 to 2008 in Nigeria.

In a recent research, Fernández-Temprano and Tejerina-Gaite (2020) reveal that board nationality diversity is related to better company performance, which comprises non-financial companies in Spanish from 2005 to 2015. In addi-

tion, Song et al., (2020), based on lodging listed companies in the US also found that the diversity ratio of nationality on the board magnifies the effect of boardroom gender diversity on company performance significantly. Shukla (2018), reported that national diversity significantly and positively impacts firm performance in India. Interestingly, a study by Darmadi (2011) in Indonesia documented that nationality diversity in boardrooms had no effect a on company’s financial performance.

In the UK literature, Adam and Baker (2020), show that board nationality diversity effects the profitability and solvency of property-casualty insurers operating in the UK. Meanwhile, they also demonstrate that European managers are related to better solvency and North American managers tend to be linked with higher financial performance. Emad-Eldeen et al. (2021) also found that board nationality diversity enhances company performance for FTSE100, FTSE250 and FTSE350 companies. Also, Estélyi and Nisar (2016) point out that national diversity is related to firm performance positively. Furthermore, their paper is based on all FTSE listed companies from 2001 to 2011. Khan and Abdul Subhan (2019) obtain a different result. They demonstrate that nationality diversity on the board negatively affects a company’s financial performance, due to differences in communication and cultural barriers. Guest (2019) found no proof to support that board nationality diversity enhances overall company performance in the UK.

Taken together, results from previous studies are still mixed. Furthermore, there is still a lack of such studies within the UK context using more recent data and larger sample. Therefore, this study forms the second hypothesis as follow:

Hypothesis 2: There is a significant positive relationship between board nationality diversity and firm performance.

3. METHODOLOGY AND RESEARCH DESIGN

3.1. Data and Sample Selection

The initial sample of this research covers all the listed companies in the LSE between the financial years 2017 and 2019. The financial data of this study were collected from the Fame database and the annual reports. Data on board size, gender and nationality diversity were obtained from the BoardEx and Bloomberg database. The initial sample downloaded from Fame comprised 4797 observations. The study then excluded 699 observations with financial companies’ data and 2248 observations with missing data, particularly on board diversity. Following prior empirical evidence (Arora, 2021; EmadEldeen et al., 2021), financial companies are excluded due to their different regulatory requirement. Therefore, the final sample consists of 1,850 observations. The procedure of the sample selection is shown in Table 1.

Table 1. Sample Selection Procedure.

<i>Description</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>Pooled</i>
All firms listed on LSE	1,599	1,599	1,599	4,797
Less: Financial firms	(233)	(233)	(233)	4,098

Less: Firm-year with missing values	760	757	731	2,248
Final sample	605	603	642	1,850

3.2. Regression Model

To examine the relationship between board diversity and firm performance, this study follows prior literature (Agemang-Mintah and Schadewitz, 2019; Brahma et al., 2021; EmadEldeen et al., 2021; Moreno et al., 2018; Shehata et al., 2017; Vafaei et al., 2015) and adopt the following ordinary least square regression models:

Model 1.

$$LnTobin'sQ_{i,t} = \alpha_1 + \beta_1 * Gender\ diversity_{i,t} + \beta_2 * Growth_{w_{i,t}} + \beta_3 * Leverage_w + \beta_4 * Lnfirm\ size_{w_{i,t}} + \beta_5 * Board\ size_{w_{i,t}} + \beta_6 * BigFour_{i,t} + \beta_7 * LnFirm\ age_{w_{i,t}} + \beta_8 * Profit_{i,t} + \beta_9 * Year\ dummy_{i,t} + \beta_{10} * Industry\ dummy_{i,t} + \epsilon_{i,t}$$

Model 2.

$$LnTobin'sQ_{i,t} = \alpha_1 + \beta_1 * Nationality\ diversity_{i,t} + \beta_2 * Growth_{w_{i,t}} + \beta_3 * Leverage_w + \beta_4 * Lnfirm\ size_{w_{i,t}} + \beta_5 * Board\ size_{w_{i,t}} + \beta_6 * BigFour_{i,t} + \beta_7 * LnFirm\ age_{w_{i,t}} + \beta_8 * Profit_{i,t} + \beta_9 * Year\ dummy_{i,t} + \beta_{10} * Industry\ dummy_{i,t} + \epsilon_{i,t}$$

The dependent variable is the firm performance, measured by Tobin’s Q, which is a market-based performance measure. In Model 1, the study tests the effect of board gender diversity on firm performance, whereas in Model 2, it tests the effect of board nationality diversity on firm performance, alongside other control variables.

Tobin’s Q has been used extensively in corporate governance and firm performance studies to measure organisation performance (Arora, 2021; Brahma et al., 2021; Adams and Ferreira, 2009; Harun et al., 2020; Shehata et al., 2017; Moreno et al., 2018). If Tobin’s Q value is greater than one, this means that the confidence of investors in the company and its growth is enhanced (Brahma et al., 2021). In the long run, companies with higher Tobin’s Q have superior firm performance (Fu et al., 2016).

This study followed Brahma et al. (2021) calculation of Tobin’s Q, which is total assets plus the market value of equity, minus total common equity, and finally divided by total assets, which is then transformed into natural logarithm. Following prior studies (Arora, 2021; Brahma et al., 2021; Kılıç and Kuzey, 2016; EmadEldeen et al., 2021; Carter et al., 2003), the female representation on board (gender diversity) is measured by the total number of female directors on the boardroom divided by the total number of board of directors. Another independent variable of this study is nationality diversity, calculated by the total number of foreign board members divided by the total number of board of directors, following EmadEldeen et al. (2021).

Following prior literature (Agyemang-Mintah and Schadewitz, 2019; Arora, 2021; Brahma et al., 2021; Emad-Eldeen et al., 2021; Li and Chen, 2018; Lutz et al., 2020; Shehate et al., 2017; Vafaei et al., 2015), the control variables that are included in the models are company size, leverage, sales growth, Big Four auditor, firm age, and board size. In addition, this study’s models also control for year and industry using dummy variables. The study covers 29 industries based on the FAME classification of major sectors and three-year financial periods from 2017 to 2019. Following Shehata et al. (2017), the continuous variables were winsorised to decrease the impact of extreme values on the data.

4. FINDINGS AND DISCUSSION

Table 2 presents the descriptive statistics for the sample. In the sample, the mean of Tobin’s Q is 1.863, which is close to the existing UK study by Brahma et al. (2021) and Emad-Eldeen et al. (2021). The mean value for gender diversity is 14.9%, which means that on average, about 15% of the board members are female. A maximum value of 50% for gender diversity ratio indicates that the proportion of women directors on board of UK public listed companies never exceeds half of the board composition. And that during the period of the study, there are still companies with the absence of women directors on the board. Further analysis (untabulated) shows that 60% of companies in the sample have at least one female director in the boardroom. This finding is lower than prior UK study by Brahma et al. (2021), where 74% of firms in their sample have at least one women director.

The mean nationality diversity ratio is 21.2%, ranging from 0% to 80%, which is comparable to a UK study by Adam and Baker (2020) which showed that 26% of their sample have at least one foreign director. Further analysis (untabulated) shows about 50% of firms in the sample have at least one foreign director on the board. Interestingly there

are still firms with zero foreign directors.

Table 2. Descriptive Statistics (N=1,850).

Variable	Mean	Std. Dev.	Min	Max
Tobin’s Q	1.863	3.519	0.025	60.572
Gender diversity	0.149	0.144	0	0.500
Nationality diversity	0.212	0.249	0	0.8
Growth	0.203	0.730	-1	5.381
Leverage	0.191	0.193	-0.013	0.886
Firm size	18.856	2.379	13.901	24.974
Board size	6.642	2.060	3	12
Big Four	0.559	0.497	0	1
Firm age	2.857	1.058	0	4.852
Profit	0.672	0.470	0	1

In the control variables, it can be seen that the average sales growth rate is 20.3%. The data support prior UK studies by Kharuddin et al. (2021), showing that the average sales growth rate is 18.5%. The maximum total number of board directors is 12, and the minimum value is 3 in the sample. Most listed firms in the sample have seven directors in their boardrooms. On average, about 55.9% of companies are clients of Big Four audit firms. This is comparable to findings in prior UK study by Kharuddin et al (2021), where 65% of companies are clients of Big Four audit companies. The mean value of leverage is 19%, which is close to what is being reported in UK studies by Brahma et al. (2021) and EmadEldeen et al. (2021), but the mean value is slightly higher than Kharuddin et al. (2019). Their result shows that

Table 3. The correlations Matrix (N=1,850).

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Tobin’s Q	1.000									
(2) Gender diversity	0.028	1.000								
(3) Nationality diversity	0.001	0.129***	1.000							
(4) Growth	0.048**	-0.083***	0.013	1.000						
(5) Leverage	-0.131***	0.202***	0.166***	-0.036	1.000					
(6) Firm Size	-0.149***	0.525***	0.301***	-0.077***	0.396***	1.000				
(7) Board size	-0.050**	0.441***	0.331***	-0.058**	0.286***	0.736***	1.000			
(8) Big Four	-0.031	0.424***	0.174***	-0.099***	0.220***	0.651***	0.462***	1.000		
(9) Firm Age	-0.098***	0.127***	0.024	-0.116***	0.057**	0.159***	0.126***	0.109***	1.000	
(10) Profit	-0.015	0.261***	-0.028	-0.093***	0.072***	0.414***	0.276***	0.321***	0.156***	1.000

*** Significant at 1% level, ** Significant at 5% level, and * Significant at 10% level.

the average leverage was 14%. The different results might be the different periods of data.

The average natural log firm size is 18.856. The result is lower than UK studies by EmadEldden et al. (2021) and Kharuddin et al. (2021). Moreover, the mean value of natural log firm age is 2.86, close to a previous UK study by Brahma et al. (2021). In addition, 67% of firms had profit in the sample, comparable with a UK study by Kharuddin et al. (2021) of 73.2%.

Table 3 illustrates the correlation matrix of the variables. It can be observed that most of the variables show a significant correlation with each other. Only board size and leverage are found to have a correlation of above 0.7. These two variables are significantly correlated at 0.736. However, the study has performed the Variance Inflation Factor (VIF) test for all the regression models and found that it is below 10. According to Hair et al. (2010), VIF of below 10 indicates that multicollinearity does not pose any serious problem to the dataset.

4.1. Regression Results

Table 4 presents the regression results for the relationship between board gender diversity on firm performance. The coefficient of board gender diversity is positive (3.319) and significant. This means that more female directors on the board improve firm performance significantly. This finding is consistent with prior UK studies Agyemang-Mintah and Schadewitz (2019); Brahma et al. (2021) and EmadEldeen et al. (2021) but in contrast to Shehata et al. (2017), who find significant negative relationship instead. However, this difference could be due to the SMEs used in their research sample. Hence, the first hypothesis is supported. Overall, the results of the control variables are significant and in the expected direction.

Table 4. Regression Results on Board Gender Diversity and Firm Performance (Tobin's Q).

Variables	Coef.	t-value	p-value	Sig
Gender diversity	3.319	5.01	0.000	***
Growth	0.194	1.76	0.078	*
Leverage	-1.305	-2.89	0.004	***
Firm Size	-0.495	-7.74	0.000	***
Board size	0.200	3.48	0.001	***
Big Four	0.622	2.90	0.004	***
Firm Age	-0.267	-3.46	0.001	***
Profit	0.386	-1.79	0.074	**
Constant	362.796	1.84	0.066	*

*** Significant at 1% level, ** Significant at 5% level, and * Significant at 10% level. All p-values are two-tailed.

Table 5. Regression Results on Board Nationality Diversity and firm Performance (Tobin's Q).

	Coef	t-value	p-value	Sig
Nationality diversity	0.693	2.000	0.046	**
Growth	0.172	1.550	0.121	
Leverage	-1.330	-2.930	0.003	***
Firm Size	-0.449	-7.060	0.000	***
Board size	0.210	3.610	0.000	***
Big Four	0.772	3.610	0.000	***
Firm Age	0.250	-3.220	0.001	***
Profit	0.497	2.580	0.010	***
Constant	250.11	1.270	0.205	

*** Significant at 1% level, ** Significant at 5% level, and * Significant at 10% level. All p-values are two-tailed.

Table 5 shows the regression results for the relationship between board nationality diversity and firm performance. The coefficient of the nationality diversity (0.963) is significant and positive, which implies that more foreign directors in the boardroom significantly enhance the company's performance. The result supports existing UK studies by Adam and Baker (2020) and EmadEldeen et al. (2021). Hence, the second hypothesis is supported. Overall, the results of the control variables are significant and in the expected direction, except for sales growth.

4.2. Sensitivity Analyses

This study further considers a few sensitivity analyses to test the robustness of our findings. The results of the sensitivity analyses are presented in Table 6.

4.2.1. Alternative Definition of Board Diversity

In this section, the study tests whether the result of the main finding is sensitive to alternative definitions of board gender and nationality diversity. Here, a dummy variable is used to substitute the continuous variable used in the main analyses presented in Table 4 and 5 earlier. For gender diversity, a dummy is defined as equal to 1 if at least there is one women director on board, and 0 if otherwise. The results are presented in Panel A of Table 6.

The result of board gender diversity is significant and positive at 1% level (0.521), which is consistent with the main findings reported in Table 4 for the proportion of women directors on board. Next, the result of the nationality diversity dummy variable shows that the coefficient is 0.501 and that foreign director positively and significantly affects firm performance at 1% level. The results also support the main findings reported in Table 5. Overall, the main findings remain unchanged and we can conclude further that even

the presence of at least one female director or one foreign director in the boardroom provides a significantly positive effects on the company’s performance.

4.2.2. FTSE Sub-samples

In this section, the study further tests whether the main results hold in different sub-samples. For this reason, this study divided the full sample (N=1,850) into FTSE 100 and FTSE 350. FTSE 100 has 153 observations, and FTSE 350 sample has 497 observations. The result in Panel B of Table 6 indicates that the coefficient is positive (3.011) but insignificant. The results support existing UK empirical evidence (EmadEldeen et al., 2021). Their sample also used FTSE 100 from 2000 to 2016, and their findings illustrate that board gender diversity has no impact on firm performance. Nevertheless, this finding is in contrast to Brahma et al. (2021) which found a positive effect of women director on a company’s performance based on FTSE100 companies listed in the LSE during the 2017 to 2019 periods.

In terms of board nationality diversity, the coefficient of nationality diversity is negative but insignificant. Again, this finding is consistent with previous UK literature by Emad-Eldeen et al. (2021) which examined FTSE 100 companies from the period 2000 to 2016. Their result demonstrates no relationship between board nationality diversity and firm performance based on FTSE 100 listed companies.

In terms of the FTSE 350 sample, similarly, the coefficient of gender diversity is positive (8.128), and the female director positively and significantly influences Tobin’s Q. The result is at variance with EmadEldeen et al. (2021). However, their findings show that the coefficient of gender diversity is positive but insignificant. In addition, the result is line with another prior UK study, Arayssi et al. (2016). Their study’s sample is all listed firms on the FTSE 350 and their regression result illustrate that board gender diversity significantly and positively improves firm performance.

On the other hand, the coefficient of nationality diversity is positive (1.325) but insignificant. The result is in line with UK study EmadEldeen et al. (2021), which illustrate that in the FTSE sample’s regression, the coefficient is positive (0.15) but insignificant.

This sub-sample sensitivity analysis shows that both board gender diversity ratio and nationality diversity ratio are only positive and significant when tested in the full sample, but not when the FTSE100 sample or FTSE350 sample are used. The only exception is the board gender diversity ratio which is positive and significant in the FTSE350 sub-sample analysis.

Table 6. Summary of regression results for the sensitivity analyses.

Variables	Coef.	p-value	Sig
Panel A			
<i>Alternative definition of board diversity:</i>			
Female – dummy variable	0.521	0.008	***

Nationality - dummy variable	0.501	0.003	***
Panel B			
<i>FTSE 100 sub-samples:</i>			
Gender diversity	3.011	0.644	
Nationality diversity	-2.875	0.292	
<i>FTSE 350 sub-sample:</i>			
Gender diversity	8.128	0.000	***
Nationality diversity	1.325	0.113	
Panel C			
<i>Alternative measure of firm performance (EPS)</i>			
Gender diversity	0.208	0.100	*
Nationality diversity	0.112	0.056	*
<i>Alternative measure of firm performance (ROA)</i>			
Gender diversity	-0.109	0.039	**
Nationality diversity	-1.080	0.020	**
<i>Alternative measure of firm performance (ROE)</i>			
Gender diversity	16.695	0.387	
Nationality diversity	-23.188	0.008	***
*** Significant at 1% level, ** Significant at 5% level, and * Significant at 10% level.			
All p-values are two-tailed.			

4.2.3. Alternative Measure of Firm Performance

Next, the study examines whether the main findings hold using alternative measures of firm performance using Earnings Per Share (EPS), Return on Asset (ROA), and Return on Equity (ROE). While other measures of firm performance using Economic Value Added (EVA) and Market Value Added (MVA) also can be found in the literature, it is not possible to employ such measure in this study due to limitation in data availability.

Firstly, this study uses EPS to substitute Tobin’s Q to measure firm performance, which has been used by prior studies (e.g. Abdullah, 2004; Bin Khidmat et al., 2020). In their studies, EPS is calculated as net income divided by the weighted average of common shares outstanding. Panel C of Table 6 shows the regression result of both board gender diversity and nationality diversity on EPS. The coefficient of gender diversity (0.208) is positive and significant, suggesting that having more female representation on board enhances firm’s performance. This result is in line with existing empirical evidence from Bin Khidmat et al. (2020). Their study consists of all listed corporations in Chinese Shenzhen 100 and Shanghai SSE 180, from 2007 to 2016. Their results show that board gender diversity significantly and positively affects earnings per share. In terms of board nationality di-

versity, the coefficient is positive (0.112), indicating that nationality diversity has a significant and positive impact on firm performance. This result also supports the prior study by Bin Khidmat et al. (2020).

Next, the study used ROA (as used in prior studies like Shehata et al., 2017; Brahma et al., 2021) and ROE (as used in prior studies like Low et al., 2015); to substitute Tobin's Q to measure firm performance. Panel C of Table 6 shows the regression result of board gender and nationality diversity's impacts on company's ROA. It can be observed that the coefficient for both, gender diversity (-0.109) and nationality diversity (-1.080) are negative and significant, which is different from the main findings. Similarly, when ROE is used as a measure of firm performance, the coefficient of gender diversity variable (16.695) becomes insignificant while the coefficient for nationality diversity (-23.188) becomes negative and significant.

The contrary results documented suggest that the positive effect of gender and nationality diversity on firm performance is only evident when performance is measured using market-based performance (i.e. Tobin's Q, EPS). However, when accounting measure of firm performance is used (i.e. ROA, ROE), which management has more discretion to manipulate those reported figures, results indicate that gender diversity and nationality diversity instead, have a significant adverse impact on firm performance. This might be the explanation as to why findings in prior literature continue to provide conflicting and mixed findings in relation to the effect of board diversity on firm performance.

CONCLUSION

This study examines the relationship between board gender diversity, board nationality diversity, and firm performance of companies listed on LSE from 2017 to 2019.

The study used Tobin's Q as the market-based performance measure. The result illustrates that board gender diversity exerts a significant and positive impact on firm performance. The results indicate that women directors have different beliefs, values, abilities of problem-handling, bring thought diversity to management. Furthermore, the result of the female dummy also implicated that when the boardroom has at least one female, it may improve firm performance. Based on this result, the study suggests that corporations should consider increase gender directors in the boardroom to obtain a better firm performance.

This study also offers new evidence that board nationality diversity enhances firm performance significantly and positively. The result indicates that board nationality diversity brings more viewpoints, expertise and exclusive information. Also, foreign directors offer the corporations and their management better access to international networks. The result even shows that having even at least one foreign director on board may improve firm performance. In general, board diversity brings a better supervision mechanism, increase board productivity, the richness of external information, thereby improving the company's performance to some extent.

This study serves essential contributions to corporate governance because it increases the number of limited UK em-

pirical evidence about board diversity and company performance. Overall, the result of the research analysis illustrates that corporate board diversity, especially in terms of board gender diversity and nationality diversity could have a favourable impact on companies' performance.

The findings of this study support previous UK literature but provides the latest UK listed companies using a larger dataset based on 2017 to 2019 financial periods. Given that this study used a large sample of UK public listed companies, the study is able to also test the sensitivity of the results to FTSE100 and FTSE350 firms separately. In addition, the results are also sensitive to alternative definitions of board gender diversity and nationality diversity. Interestingly, based on the sensitivity analyses performed, contrary results were documented using alternative measures of firm performance, suggesting that the positive effect of gender and nationality diversity is only evident when performance is measured using market-based performance (i.e. Tobin's Q, EPS). However, when accounting measures of firm performance is used (i.e. ROA, ROE), which management has more discretion to manipulate those reported figures, results indicate that gender diversity and nationality diversity instead, have a significant adverse impact on firm performance. This might be the explanation as to why findings in prior literature continue to provide conflicting and mixed findings in relation to the effect of board diversity on firm performance. Recommendations for future research could include examining a larger dataset, using alternative measure of firm performance (i.e. economic value added, market value added), and alternative measure of board diversity.

The study has several practical implications. Firms can get benefit if they know how board diversity influence their firm performance. The aim of board diversity is to guide firms to improve economic benefits in an optimum way, such as improving firms' rights equality awareness and decision-making, making use of resources efficiently, and finally enhancing firm performance. The results are also helpful for the government as the study addresses a significant issue in corporate governance. For example, in assessing whether there is a need to introduce a legislative quota to increase the number of females on the board like other European countries, such as Spain, Germany and Italy.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflict of interest.

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