

# “Now you see me: diversity, CEO education, and bank performance in the UK”

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# NOW YOU SEE ME: DIVERSITY, CEO EDUCATION, AND BANK PERFORMANCE IN THE UK

## Abstract

This paper investigates the impact of board diversity and CEO educational background on bank performance. Based on a sample of 54 UK publicly listed banks over the period 2005–2015, we examine the relationship of both static and dynamic modelling frameworks, which controls for individual specific effects and potential sources of endogeneity. The study reports a positive but insignificant relationship between CEO education and bank performance, and a positive significant association between gender diversity and bank performance. It further denotes a negative and significant impact of nationality diversity on bank performance. Our findings provide empirical support for the significance of the association between board diversity and firm performance. Our study also provides support for theories concerned with how corporate governance differs in financial institutions.

**Keywords** corporate governance, board diversity, CEO education, UK banks

**JEL Classification** G01, G20, G21, G30

## INTRODUCTION

In the new global economy, corporate governance has become a key issue for financial institutions. However, the global financial crisis caused losses and closures for a massive number of financial firms with the large part of the blame being directed at the governance of these institutions. This led governments worldwide to pay attention to the importance of governance for financial services providers and banks in particular (Garcia-Meca et al., 2015). The bank board is an essential part of corporate governance, which has a vital role in determining the bank's financial behavior and reactions to complex situations. Moreover, other stakeholders do not have the board's ability to impose the proper and effective governance in banks (Levine, 2004). Prior studies have considered board diversity to be one of the major issues among board characteristics that affect financial firms decisions and investments (Oxelheim & Randoy, 2003; Veltrop et al., 2015). In addition, educational background seems to be a fundamental asset of a new CEO in the appointment decision for a bank or other financial firm (King et al., 2016).

Indeed, Levine (2004) attributed the complicated governance system in banks to the ambiguous nature of banks, and a number of factors such as the quality of supervision, regulation level, bank environment, and the nature of banks' assets (Adams & Mehran, 2003; Macey & O'Hara, 2016; Sherif & Anwar, 2016). For example, Bai and Elyasiani (2013) claim that the traditional governance standards of the non-financial institutions are no longer reliable when applied in the banking system, which has different stability requirements. This motivates us to investigate the effect of CEO educational background and the effect of gender and nationality diversity on bank financial performance. Our

research is unique because much less is known about how banks should be managed inside the board room, which is not common in the literature. One of the reasons also to study UK banks is justified by the high percentage of female representation in listed companies in contrast to many jurisdictions (Sherif & Anwar, 2016; Shehata et al., 2017).

This paper has several contributions to the literature. First, it provides direct evidence on the relationship between board diversity and firm performance within the UK banks and provides more insights to research concerned with how financial institutions should be managed. In addition, it has been noticed that the financial sector would benefit from further studies that focus on increasing the efficiency of monitoring and enhancement of financial firms' governance. Second, the banks' different characteristics and the banking environment make it more interesting to study the effect of the diversity on the Board of Directors (BoD) and CEO educational backgrounds in the UK banks. To the best of the authors' knowledge, this study is the first to examine the relationship between bank performance, CEO education, and nationality diversity on the BoD in the UK.

The study findings suggest a significant positive association between gender diversity on BoD and bank's performance, an insignificant impact of the foreign members on the BoD and bank's performance, and a positive significant impact of CEO's business education on the financial performance of banks. Therefore, this study makes a major contribution to research on bank governance by demonstrating how different constituents of bank boards can affect the performance of the bank and recommending governments and policymakers to pay more attention to board members and CEOs education in order to guarantee a strong financial system.

In this research, the authors aim to provide answers to several questions. First, does it matter to have gender diversity in the boardroom of UK banks? Second, do foreign directors meet board's expectations in the UK banks? Third, does it matter to invest more in board member's education? Finally, do the results vary when using more than one performance measure?

The remainder of the paper includes an analytical review for the previous studies in the first section, details on the models and methods in the second section, data and empirical findings in the third section, summary and conclusion in the last section.

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## 1. THEORETICAL BACKGROUND

As previously mentioned in the introduction, a significant number of financial firms collapsed or just survived by their governments' intervention because of the 2007–2008 global financial crisis (Erkens et al., 2012; Sherif & Anwar, 2016). Although some firms were affected much more than others, such failure required political interventions from governments of the affected economies all over the world (Taylor, 2009). This led the Basel Committee with its responsibility toward banking supervision to emphasize the importance of understanding how banks should be managed inside the board room and promoting corporate governance in banks (Garcia-Meca et al., 2015). Underpinning this, a robust governance system

increases monitoring efficiency and guarantees a trusted financial system with a good reputation, which aids the whole country's economic development (Basel Committee, 2010). Consequently, the Board of Directors (BoD) must perform various functions such as providing information to subordinates, engage managers in monitoring and controlling, link the organization to the external surrounding environment and monitor compliance with legalities from rules and regulations (Garcia-Meca et al., 2015).

A large body of theory from economics, resource dependence, human behavior and social psychology provides deep understanding to the relationship between firm's performance and board of director's functions (Carter et al., 2010). For example, agency theory (Jensen & Meckling, 1976), is one

sidered as a branch of financial economics that is mainly premised on the latent conflict between management and owners. This conflict emphasizes our need for a strong governance mechanism to monitor and control firm's activities (Wagana, 2016). Carter et al. (2003) also imply that, having members with varied skills and experiences in a well-balanced diverse board can help in achieving better monitoring for manager's performance. Moreover, the proper balance of boards (comprised of representations from different backgrounds) prevents individuals and groups with common special interests from dominating the process on the making and taking of decisions. Conversely, Carter et al. (2010) argue that although agency theory supports the importance of board diversity in increasing and improving the board's independence, it does not contend a robust support for the relationship between board diversity and a firm's financial outcome compared to other theories such as resource dependence theory.

Corporations are not separate entities but exist in an environment which is linked to and reacts with the surrounding opportunities and threats. Resource dependence theory (Salancik & Pfeffer, 1978) argues that organizations should gain the benefit of available resources from information and expertise in the environment and gain support from important groups or organizations in the external context. Lawal (2012) also claims creating a firm legitimacy in the environment from building communication channels is of importance to the firm.

In this context, Hillman et al. (2002) consider board of directors as vital part of the organizational resources for each firm through using their external networks and individual relationships to attract important needed resources, which helps the firm to compete. Additionally, a well-diversified board can assist firms in gaining different information and wider exposure to the environment from suppliers, customers, policymakers, as well as social groups and competitors. Moreover, it reduces the transaction costs that firms may bear in accessing such information. Subsequently, under resource dependence theory, firms with diverse board members are expected to have superior performance.

With regard to human capital theory, it has been reported that the person's experience, skills and education shape his character, affect his decision-making process and can be used to generate benefits for an organization (Becker, 1964). The existence of different genders and nationalities within the board leads to unique human capital, which is expected to affect the firm performance (Nielsen & Huse, 2010b). However, Terjesen et al. (2009) contend that, although women on BoD have the same level of qualifications as men in terms of education they are less likely to gain experience faster due to tokenism that may exist on the board and hinder women's contributions.

Under the theory of human capital and consistent with contingency theory (Fiedler, 1964) the effect of board diversity on the firm is positive or negative according to the type of firm and time circumstances. Consistently, social psychological theory claims that differences in gender, nationalities and education provide a diversified stock of skills, information, and opinions, which add value to the critical thinking and decision-making on one hand, but can also lead to more time-consuming conflict, which negatively affects the effectiveness on the other (Campbell & Minguez-Vera, 2008). While Westphal and Milton (2000) believe, divergent thinking may be encouraged due to having different groups in the board room. Social psychological theory thus views board diversity has both positive and negative impacts on firm performance. Indeed, the relationship between CEO education, diversity on BoD and firms' performance has attracted the attention of scholars to investigate the nature of the association between these variables and how this affects policymakers when making decisions regarding hiring a CEO or the acquisition of a new board member.

### 1.1. CEO education

One of the key corporate board roles is to select a superior Chief Executive Officer (CEO) with outstanding capabilities. In this regard, CEO ability is considered a combination of sensible characteristics such as previous work experience, career reputation history and education; non-observable characteristics such as leadership ability, acquiring board members and shareholders trust

and teambuilding skills. However, measuring the non-quantifiable characteristics and skills of CEOs empirically is a major challenge (Falato et al., 2015). A measurable and objective characteristic such as education is expected to play a vital role when hiring the CEO, especially when the stock market reacts positively to the companies that appoint CEOs with stronger educational backgrounds (Bhagat et al., 2010). In addition to education being an important factor in the CEOs hiring process, those with advanced degrees are also expected to have higher compensation treatment compared to their peers with less advanced educational credentials (Graham et al., 2012). In this line, Falato et al. (2015) document reliable evidence of payment for CEO educational credentials, reporting a positive effect of CEO with more advanced education on the company performance. Further, Miller et al. (2015) argue that CEO skills are dependent on the nature of academic qualifications, which vary in accordance to quality and level of the awarding educational institution.

However, the empirical evidence regarding CEO education is not yet consistent. For example, Gottesman and Morey (2010) found no association between firm performance and CEO educational background. Moreover, a wave of studies argue that a firm's outstanding performance is a reflection of the company position and CEO qualification not education (see for example, Beber & Fabbri, 2012; Gottesman & Morey, 2010). Interestingly, these findings are contradictory to some recent studies that prove a positive association between CEO education and corporate performance. For example, Jalbert et al. (2002) indicate that CEOs without a college degree can earn more profits than those CEOs holding degrees. Similarly, Gottesman and Morey (2010) claim no relationship between CEO's educational background and firm's financial performance.

In another study, Barker and Mueller (2002) report that younger CEOs with advanced science education, such as engineering, are more likely to invest much money in research and development, implying that the educational background affects CEO's investment decisions. However, they also report an insignificant relationship between advanced degrees such as MBA or PhD

and firm performance. With regards to CEOs with MBA degree, they are less likely to engage in risky decisions, as risk-taking skills are found to be related to age more than the level of manager education (King et al., 2016). In addition, executives with PhD degrees are also associated with low portfolio risk in comparison to others (Barker & Mueller, 2002; Berger et al., 2014). Conversely, Beber and Fabbri (2012) indicate that firms with a CEO that holds an MBA degree and has less prior work experience, is shown to speculate more due to CEO's overconfidence. King et al. (2016) support education and its impact on CEOs' performance implying that banks led by CEOs with higher MBA scores are more likely to achieve better levels of bank profitability compared statistically to banks headed by CEOs without a MBA degree. Nevertheless, in the risk context, CEOs with an MBA make riskier and innovative decisions to secure superior bank performance.

To conclude, two empirically proven suggestions exist; one supports the view that education delivers skills that enable CEOs to manage banks, make proper decisions in complex situations, and to achieve better outcomes. The other suggests that there is no significant evidence on the impact of CEO education level or quality on bank financial performance. Indeed, mixed evidences for the impact of CEO education on firm performance are found. Due to this conflict a null hypothesis is identified as follows:

*H1: CEO educational background has no impact on the bank performance.*

## 1.2. Board diversity

Increasingly, the composition of the board of directors in terms of nationality and gender diversity have become critical issues for policymakers in many countries. Here, some governments have established sets of rule guidelines for board diversity, however, it is not obvious how and whether these guidelines or policies will achieve the desired outcomes (Garcia-Meca et al., 2015). In this study, therefore, the authors bridge this gap and provide insights to policymakers through investigating the impact of diversity among members in the board room.

### 1.2.1. Gender diversity

Gender diversity and bank performance have blurred and indecisive relationship that makes this topic subject to future research. Prior research suggests a positive association between the two factors; however, another strand of research plainly find the opposite or conclude no evidence on the relationship between both of them.

In this line, Zelechowski and Bilimoria (2004) find that, although women as board directors have sufficient managerial and human skills, good communications, rules and regulations awareness, and public relations skills, they are not well represented in board rooms compared to men. Furthermore, Upadhyay and Zeng (2014) demonstrate that female members on the board present different points of view in board discussions, which help in promoting the board decisions in a more transparent information environment due to diversity. Elsewhere, Dezso and Ross (2012) report that having women in the top level of management improves the performance of firms that have an innovation-focused strategy, indicating that it is important for a firm to take the social and informational benefits of different genders into consideration. Similarly, Nielsen and Huse (2010a) find that women have a positive effect on increasing the board development activities and decreasing the level of conflict, which helps in maintaining a strong strategic control.

With regard to the risk perspective, Hutchinson et al. (2015) support that greater gender diversity reduces firm excessive risk and improves financial performance. The higher the proportion of women in top management jobs, the higher the firm's financial performance (Smith et al., 2006). This is supported by Liu et al. (2014) who document that boards with three female directors or more strongly affect firm performance more than those with two or less female directors. Additionally, they provide evidence of Chinese regulators that female directors have more legal control. Elsewhere, Minguez and Campbell (2007) suggest that investors do not punish Spanish firms for acquiring female board members, calming that such gender diversity helps in generating economic gains. In contrast, other research reported a negative association between corporate

performance and gender diversity on the BoD. For example, Haslam et al. (2010, p. 22), who claim that companies, where the majority of directors are women, found weak performance, which leads to a devaluation of companies by investors. In another study, Adams and Ferreira (2009) find that firms with high diversity level among their boards are more likely to pay more incentives, have more board meetings, and suffer from the negative operating performance.

Smith et al. (2006) indicate that the higher performance associated with the significant presentation of women in Danish companies is due to their qualifications rather than their gender. Similarly, Carter et al. (2010) report an insignificant relationship between gender diversity and US firm performance implying that ethnic and gender diversity should be considered as key endogenous factors. Likewise, Marinova et al. (2016) report an insignificant relation between firm performance and board diversity. Gregory-Smith et al. (2014) also find no evidence for the idea that higher percentage of females on BoD can affect the UK corporate performance. Similarly, Brammer et al. (2007) suggest that gender diversity on BoD is less possibly to affect the performance of UK companies.

Equipped with the above review, it is evident that such studies have relied on a cross-sectional analysis, which limits the outcome of analyzing the relationship between firm performance and diversity on the BoD. Reflecting on the previous studies in this area, it is evident that further examination of the relationship between board gender diversity and bank performance is necessary as each of these studies present mixed findings. As such our second hypothesis considers:

*H2: Gender diversity has no impact on the bank performance.*

### 1.2.2. National diversity

The nationality of directors is another element of board diversity that requires consideration. While some prior studies report no evidence or a negative impact of a foreign director as a board member, a few other studies support that spreading the idea of businesses' internationalization highlights the

need for directors with key knowledge and international communications, which aids the networking of the firm in other countries. For example, Carpenter et al. (2001) provide evidence of international CEOs producing outstanding performance in the USA. Furthermore, diversity on boards is argued to help in increasing the pool of active foreign investors and reduce the number of domestic shareholders. This arguably improves firm performance through efficient utilization of capital and productive labor (Fogel et al., 2013).

Examining firm size, industry type, and board size, Carter et al. (2003) find a significant positive relationship between the presence of foreigners and ethnic minorities on board of directors. Likewise, Oxelheim and Randy (2003) indicate that importing outsider board members can enhance the international orientation of firms listed in Sweden or Norway. Additionally, they argue that foreign members have a positive impact on exchange-traded firms. Elsewhere, the work of Choi et al. (2007) using a sample of 457 firms, also indicates that foreign directors have a significant positive effect on the firm performance in Korea.

Moreover, some studies on board diversity conclude that foreign directors are less likely to have affiliations from gaining shareholders or consultation. This is because a foreigner board member faces a significant closed domestic network with low experience, which makes it difficult for him/her to add significant contributions to board decisions. Additionally, conflicts between foreign and domestic members affect decision speed and communication in the board room (Ruigrok et al., 2007). Similarly, Masulis et al. (2012) highlight that foreign directors are not familiar enough with national laws and regulations, and normal domestic management methods, implying that foreign board members have significant weak performance. In contrast, they also highlight that the stock market has a negative reaction toward the announcement of a foreign independent director appointment. Indeed, the work of Douma et al. (2006) indicates that the overrated performance of foreign directors is considered a justification for the reported negative relationship between foreign directors and Indian firms' Tobin's Q and ROA. This leads to our third hypothesis:

*H3: Nationality diversity has no impact on the bank performance.*

Finally, a number of studies support the contention that nationality plays an important role in bank performance (Carpenter et al., 2001; Fogel et al., 2013; Oxelheim & Randoy, 2003). In contrast, Douma et al. (2006), Ruigrok et al. (2007), and Masulis et al. (2012) report a negative effect of different nationalities between board members on the firm performance. Accordingly, with conflicting empirical evidence, it is difficult to determine the impact of foreigners on the bank board.

Another strand of previous research found that gender diversity has a positive effect on corporate performance (Bart & McQueen, 2013; Campbell & Mnguez-Vera, 2008; Garcia-Meca et al., 2015; Hutchinson et al., 2015; Liu et al., 2014; Zelechowski & Bilimoria, 2004). However, another group of studies found a negative effect of gender diversity on the firm performance (Adams & Ferreira, 2009; Smith et al., 2006). For example, Carter et al. (2010), Gregory-Smith et al. (2014), Marinova et al. (2016) found no association between gender diversity on the BoD and corporate financial performance. Such contradicting results motivate us to investigate the impact of gender diversity on banks.

Furthermore, although education is considered as a key factor that affects board member decisions and participation in the board room (Bhagat et al., 2010; Falato et al., 2015; Graham et al., 2012; King et al., 2016; Miller et al., 2015), the empirical evidence on board education is not yet to consistent or comprehensive. While recent studies document a positive association between CEO education and corporate performance, other research found no relationship between firm performance and CEO educational background. They claimed that a firm's outstanding performance is a reflection of the company position and CEO qualification rather than education (Barker & Mueller, 2002; Beber & Fabbri, 2012; Gottesman & Morey, 2010; Jalbert et al., 2002). Consequently, there are two contradicting findings that provide different empirical evidences regarding the influence of CEO educational background on the firm's performance. This, indeed makes discovering, understanding, and analyzing the relationship between level, quality, and type of education, and bank performance a more stimulating topic.

## 2. MODELS AND METHODOLOGY

The analysis in this study is based on the employed regression model, which has the following functional form:

$$BKPF = \left[ \alpha + \beta \cdot GEN_{it} + \beta \cdot NAT_{it} + \beta \cdot EDU_{it} + \beta \cdot COT_{it} (\ln TA_{it} + ETA_{it} + FC_{it}) + \varepsilon_{it} \right], \quad (1)$$

where  $i$  is the bank ID number (1-56),  $t$  denotes the time period (2005–2015); BKPF refers to the bank performance measures used in the study which should be one of *TQ*, *ROAA*, *ROAE*, *NIM*. *GEN* is the gender diversity variable, which represents the females' proportion on the BoD. *NAT* refers to the Nationality diversity measure, which denotes the percentage of foreigners in the board room for each bank in each given year. *EDU* is a dummy variable, equals 1 when the bank's CEO has a business educational background and 0 if the CEO is coming from non-business educational background. *COT* refers to the study control variables, which are total equity to total assets ratio, bank size measured by the *ln* of total assets, and financial crisis.

Our study illustrates how employing a variety of methodologies can affect the empirical results that are used to analyze banks performance. A pooled regression is firstly estimated in which neither the unobservable heterogeneity nor the endogeneity of board diversity and CEO education is firstly considered. The Ordinary Least Square (OLS) is simply used to estimate the pooled model. OLS is more applicable if there is no existence for time or individual firm-specific effects, but if they exist, then the unobserved effects of time or individual specific effects are accommodated by using a panel data technique (Boulouta, 2013; Fogel et al., 2013). In panel data, there are the static and the dynamic models. Clark and Linzer (2015) suggested that the independent variables are fixed and do not change over time under the fixed effect model, whilst the independent variables are assumed to be random and vary over time in the random effect model, and the independent variable and the effect units are uncorrelated. Moreover, the study estimates the dynamic data model to overcome the static model assumption denoting that all independent variables are exogenous (Adams & Mehran, 2012).

## 3. DATA AND EMPIRICAL FINDINGS

### 3.1. Data

The sample used in this study consists of 535 observations for the publicly listed banks in the UK. Annual panel data are adopted and span the period 2005–2015. The bank assets, equity, and the financial measures were obtained from Bank Scope database and annual reports, while board diversity (gender and nationality diversity) data were drawn from Fame, Bank Scope, and Boardex databases. CEO education data were mainly obtained from Boardex database. The initial sample comprises the whole population, but due to data availability, only banks with detailed data on each bank CEO educational background and the percentage of females and foreign directors for each year are selected.

Alternative market and accounting based ratios are used to measure bank performance, namely Tobin's Q (TQ), Return on Average Assets (ROAA), Return on Average Equity (ROAE), and Net Interest Margin (NIM). For board diversity measurements, the female proportion (GEN) on BoD is used to find the impact of female members on the bank performance, while for nationality diversity, the foreign directors' effect on banks performance is measured using the foreigners' proportion among the board members (NAT). The control variables include bank size represented in total assets (lnTA), the percentage of bank equity to total assets (ETA), and financial crisis (FC) as a dummy variable which equals 1 during the years of crisis and 0 otherwise.

### 3.2. Empirical findings

#### 3.2.1. Descriptive statistics and correlation matrix

Our analysis begins with reporting the descriptive statistics. Table 1 reports the summary statistics for all data during the study period. The market-based variable Tobin's Q (TQ) is primary used as a measure of bank performance. The mean of Tobin's Q of our sample is 0.598 which is less than 1.05 the average TQ of Adams and Mehran (2012) study. It

is lower also than Garcia-Meca et al. (2015) and Pathan and Fa's (2013) work where both reported 1.1 as TQ mean in their studies. For accounting-based performance measurements, our findings report higher mean values for ROAA, ROAE, and NIM compared to previous studies. However, for foreign directors and female representation on the board Garcia-Meca et al. (2015) report reduced averages compared to our study. While Liang et al. (2013) reported 0.11 as a mean value for the females' proportion on the BoD, which is closer to our result, they also reported a very low percentage (0.06) for foreign directors in Chinese banks.

Table 1 represents the correlation between the dependent and independent variables. Notably, this correlation matrix shows that there are significant relationships between the majority of the selected variables of the study and the performance measurements. Any multicollinearity among the performance measures (dependent variables) does not affect our results simply because four different models are employed; one for each different measure.

More specifically, it is clear there are negative relationships between the existence of foreign directors and all measures except NIM, these results are consistent with previous studies. However, this Table 1 also shows the positive correlation between having female directors inside the board and all bank performance measures. The bank size (total assets) is negatively correlated with three out of four performance measures which are in line with Adams and Mehran (2012). For CEO's educational background, it is found that a significant positive correlation with banks TQ, ROAA, and NIM, while an insignificant association with the bank ROAE is found. This matrix also reports a negative relationship between the foreign directors' percentage and the CEOs with business educational background among the board of directors, implying CEOs with a good level of experience in business studies prefer to deal with English directors from the UK than foreign directors. It is also shown that the CEO with business education can easily work with female directors, but this is an insignificant finding.

**Table 1.** Summary statistics and cross-correlation

Variable	Mean	Std. dev.	Min.	Max.	N
<b>Performance measures:</b>					
TQ	0.598	0.385	0.01	3.05	495
ROAA	5.108	11.422	-49.2	48.18	535
ROAE	10.429	15.484	-65.820	58.84	535
NIM	5.756	26.213	-80	300	527
<b>Board diversity and CEO education:</b>					
NAT	0.205	0.223	0	0.878	594
GEN	0.173	0.107	0	0.429	594
EDU	0.722	0.448	0	1	594
<b>Control variables:</b>					
In TA	14.185	2.774	10.008	21.599	535
ETA	56.692	37.003	.930	100	535
FC	.182	.386	0	1	594

  

Variables	NAT	GEN	EDU	InTA	ETA	TQ	ROAA	ROAE	NIM
NAT	1.000	-	-	-	-	-	-	-	-
GEN	0.029	1.000	-	-	-	-	-	-	-
EDU	-0.401	0.023	1.000	-	-	-	-	-	-
InTA	0.420	0.249	-0.463	1.000	-	-	-	-	-
ETA	-0.537	-0.074	0.435	-0.697	1.000	-	-	-	-
TQ	-0.430	0.013	0.430	-0.605	0.651	1.000	-	-	-
ROAA	-0.169	-0.000	0.124	-0.160	0.248	0.302	1.000	-	-
ROAE	-0.002	0.030	0.027	0.012	-0.123	0.166	0.833	1.000	-
NIM	0.096	0.039	0.134	-0.160	0.007	0.203	0.033	0.078	1.000

### 3.2.2. OLS and panel data models estimates

Table 2 shows the pooled OLS estimates results which explain the role of gender and nationality diversity and CEO educational background on banks performance (Tobin's Q, ROAA, ROAE, and NIM). The females' percentage on the BoD has positive impact on all performance measures, but it has the highest significance level (0.01 level of significance) at TQ ( $\beta = 0.879$ ), this is consistent with Garcia-Meca et al. (2015), who found that female directors have remarkable performance and can enhance the board decisions. Although the proportion of female representation is positively correlated to ROAA ( $\beta = 5.387$ ) and ROAE ( $\beta = 5.496$ ), it is insignificant, but it significantly affects (at .05 level of significance) the bank NIM ( $\beta = 21.42$ ). These results are in line with Dezsó and Ross (2012), Hutchinson et al. (2015), Liu et al. (2014), and Upadhyay and Zeng (2014) who emphasized how having female directors on the BoD is important and reported the positive impact of their efforts on the corporate performance. These results are consistent with Salancik and Pfeffer's (1978) resource dependency theory and by supporting the argument that different directors with different perspectives are considered as valuable resources for any organization. However, these results are contradicting with Haslam et al. (2010), Smith et al. (2006) who suggest more focus on women qualification; not just being women. Likewise, Adams and Ferreira (2009) found a negative effect of mandating the gender proportion on US firms board and the performance of these firms.

From Table 2, the findings depict a negative significant association between TQ and ROAA and the foreign directors' percentage on the BoD. Although different significance levels are maintained, the highest one (at 0.05 significance level) assigned with TQ ( $\beta = 0.300$ ), indicates that foreign directors on the BoD negatively affect banks performance in the UK, which is in line with Garcia-Meca et al. (2015) who also reported a negative effect of foreign minorities in different markets. Berger et al. (2014), and Gottesman and Morey (2010) also suggest that foreign board members are less likely to outperform other national members. In addition, our results contrast with Oxelheim and Randøy (2003), who support that maintaining different nationalities within the board may enhance firm performance.

It is important for board members and directors to enhance their business education level, which will increase their chance to be nominated or selected for a CEO position. These results prove that appointing a CEO with a business educational background has a positive significant impact on the bank's TQ ( $\beta = 0.101$ ) and NIM ( $\beta = 8.978$ ). Although the other accounting-based measures ROAA and ROAE report an insignificant effect of CEO education on bank performance, they show a positive relationship between the both variables. Our results are consistent with the evidence of Falato et al. (2015) in supporting higher pay for CEO with high business educational credentials and the argument of Gottesman and Morey (2010) who reported no association between CEO education and firm financial performance. Regarding the control variables, it is clear that the bank size has a negative relationship with the firm performance represented in TQ, ROAA, and NIM which is confirming the results of Adams and Mehran's (2012) study. This also supports the argument that a large portion of the bank assets is allocated for loans which increases the firm's risk. As such the significant negative relationship between bank assets and its market performance represented in TQ ( $\beta = 0.0464$ ) could be logically accepted. In contrast, the accounting-based measure of performance ROAA reports a positive but insignificant relationship with the bank size which partially agrees with Garcia-Meca et al. (2015) who reported a positive but significant effect of bank size on its ROAA. Thus, the financial crisis has a significant negative effect on bank performance under all measures, which is in line with previous studies that measured the impact of financial crisis on firms performance.

To enhance the study results the robust OLS regression is applied using a new control variable, bank equity, which is a widely used control variable in various empirical studies that investigate the effect of board characteristics on corporate performance such as Adams and Mehran (2012)'s work and Pathan and Faff (2013). The results in Table 3 demonstrate that the females' proportion on the BoD still has a significant positive association with bank market-based performance (TQ). The relationship between the foreign directors' percentage and bank performance is also found to be negative but insignif-

**Table 2.** OLS model estimates

Variable	(Model 1) TQ	(Model 2) ROAA	(Model 3) ROAE	(Model 4) NIM
<i>GEN</i>	0.879***	5.387	5.496	21.420*
<i>NAT</i>	-0.300***	-6.236*	0.186	33.010***
<i>EDU</i>	0.101**	0.735	1.530	8.978**
<i>lnTA</i>	-0.074***	-0.480*	0.091	-2.185***
<i>FC</i>	-0.112***	-8.368***	-10.890***	-1.304
<i>-cons</i>	1.487***	13.120***	8.950*	20.410**
R <sup>2</sup>	0.473	0.112	0.067	0.077

Notes: *p*-values in parentheses \*\*\*0.01, \*\*0.05, \*0.1.

icant. CEO educational background affects the bank performance significantly and positively as represented in TQ (0.0779) and NIM (9.603). There are no changes while measuring the effect of the financial crisis on bank performance, as the results are still reporting a significant negative effect of the financial crisis on both market and accounting-based performance measures. The new control variable, bank equity, appears to have a significant positive effect on both TQ and ROAA and a negative effect on ROAE, which is statistically logical when the total equity increases and the return remains the same or does not increase with the same level of total equity, this will reflect a reduction of banks ROAE.

To control for heterogeneity across banks, an alternative technique is employed in the form of fixed and random effects of panel data regression as laid out in Table 4, according to Hausman test ( $p = 0.2197$ ), the random effects model is applied. They present less significant results implying that although there is a positive impact of gen-

der diversity and CEO education on bank performance, they are no longer highly correlated relationships except for the significant positive effect of gender diversity on bank NIM (at .05 significance level) under the fixed effect model. Regarding the foreign directors, a negative but insignificant relationship between the foreign directors' percentage and the performance measures except NIM is evident, which comes in line with Fogel et al. (2013), Carpenter et al. (2001) and Carter et al. (2003). However, the financial crisis period shows a significant negative relationship with the UK listed banks performance proving that the global financial downturn has a negative effect also on the UK. Likewise, bank size still has a negative significant relationship with banks performance under the random effect model, which supports the previous results of the OLS model. The relationship between the ETA and bank financial performance is positive but insignificant under the FE model and significant under the RE model except with ROAE as previously shown.

**Table 3.** Robust OLS model estimates

Variable	(Model 1) TQ	(Model 2) ROAA	(Model 3) ROAE	(Model 4) NIM
<i>GEN</i>	0.758***	3.051	9.802	26.14**
<i>NAT</i>	-0.133	2.938	5.893	27.45*
<i>EDU</i>	0.078**	0.443	0.443	9.603***
<i>lnTA</i>	0.046***	0.0430	0.873*	-3.186***
<i>ETA</i>	0.004***	0.068***	0.125***	0.126**
<i>FC</i>	0.105***	8.211***	11.180***	-1.556
<i>-cons</i>	0.907***	1.844	29.74***	41.57***
R <sup>2</sup>	0.523	0.131	0.104	0.089

Notes: *p*-values in parentheses \*\*\*0.01, \*\*0.05, \*0.1.

**Table 4.** Random effect model estimates

Variable	(Model 1) TQ	(Model 2) ROAA	(Model 3) ROAE	(Model 4) NIM
GEN	0.180	3.051	9.437	23.55**
NAT	-0.147	-2.938	-5.117	58.43**
EDU	0.137	0.443	2.166	10.80
lnTA	-0.006	0.043	-0.758	-1.857
ETA	0.006***	0.068***	-0.114***	0.160
FC	-0.096***	-8.211***	-11.16***	0.234
-cons	0.311	1.844	27.37***	0.704
R <sup>2</sup>	0.413	0.112	0.076	0.085

Notes: *p*-values in parentheses \*\*\*0.01, \*\*0.05, \*0.1.

### 3.2.3. Fama – MacBeth model

To strengthen the results associated with OLS and the static panel data fixed and random effect model, Fama and MacBeth (1973) is employed as a robustness check of our findings. Similar results are provided in Table 6 to our previous analysis confirming the positive significant relationships between the proportion of females on the BoD and bank performance, as well as supporting the positive significant effect of the CEO educational background on bank performance in the UK. However, this test also reports a negative and insignificant association between foreign members on the board and the bank performance. Overall, it is found that a similar pattern of results confirming that additional tests can improve the statistical significance level and direction of the results.

### 3.2.4. Quantile regression

To overcome the OLS drawbacks such as producing the conditional mean and specifying one estimate

for the relationship between the bank performance measures and each independent variable (Hallock et al., 2010), the quantile regression model is employed to estimate different relations of board diversity variables and CEO education across the conditional distribution of performance measures (Sula, 2011).

Table 6 depicts estimates which are consistent with the previous models estimates. It shows a significant positive association between females' proportion on the BoD and bank performance measured by TQ and NIM. What stands out in the table is the negative significant relationship between percentage of women on BoD and the bank TQ, which confirms the robustness of our findings. Conversely, Table 7 provides a positive but insignificant impact of CEO education and bank performance. It is also shown that bank size has a negative significant impact on bank performance, bank equity plays a key role in improving the performance, and the financial crisis has its negative impact on the UK bank.

**Table 5.** Fama – MacBeth model estimates

Variable	(Model 1) TQ	(Model 2) ROAA	(Model 3) ROAE	(Model 4) NIM
GEN	0.722***	3.189	8.788	25.10***
NAT	-0.123	-2.507	-4.584	20.90*
EDU	0.089**	0.567	2.442	8.825***
lnTA	-0.048***	-0.007	-0.896*	-2.939***
ETA	0.004***	0.065	-0.128*	-0.130***
-cons	0.900	0.978	27.91***	39.46***
R <sup>2</sup>	0.564	0.205	0.099	0.091

Notes: *p*-values in parentheses \*\*\*0.01, \*\*0.05, \*0.1.

**Table 6.** Quantile regression model estimates

Variable	(Model 1) TQ	(Model 2) ROAA	(Model 3) ROAE	(Model 4) NIM
<i>GEN</i>	0.262***	2.275	5.478	4.661**
<i>NAT</i>	-0.120**	-0.636	-6.198	-0.612
<i>EDU</i>	0.0257	0.105	0.140	0.361
<i>lnTA</i>	0.0203**	-0.140	-0.878**	-0.336***
<i>ETA</i>	0.007***	0.083***	-0.125***	-0.241***
<i>FC</i>	-0.039*	-0.966	-8.121***	0.0478
<i>-cons</i>	0.435***	2.736	32.11***	7.325***
R <sup>2</sup>	0.526	0.156	0.052	0.013

Notes: *p*-values in parentheses \*\*\*0.01, \*\*0.05, \*0.1.

## CONCLUSION

This paper analyzes the relationship between board gender diversity, nationality diversity, CEO educational background and bank financial performance using data of listed banks in the UK. It measures the bank performance using both market-based measure (TQ) and accounting-based measures (ROAA, ROAE, and NIM). Various econometrics techniques including OLS, static panel data models and the Fama and MacBeth (1973) test are used. Using a sample of 54 listed banks in the UK market with 535 observations over the study period from 2005 to 2015, our findings conclude that employing different econometric techniques besides more than one performance measure can provide different results at least on the level of significance for the study variables relationships.

Our analysis finds that board diversity and CEO education do matter with respect to bank governance and that it affects its financial performance. With respect to board diversity, our evidence indicates a positive association between female proportion on the BoD and the firm's financial performance measured by both accounting-based and market-based measures. Additionally, this study highlights that boards which contain a foreign minority in their directors may face domestic barriers such as awareness of the industry regulation or the overall work performance which may make them less likely to have a positive effect on the decision-making process. It also recommends that government and policymakers in the UK should give more attention to CEO educational background and check that candidates have a proper business education which will enable them to enhance decision making and guarantee a strong financial system. It also reports a negative relationship between the bank size represented in its total assets and the bank financial performance. While it is evident that UK banks have been affected throughout the financial crisis period, the findings also suggest that the bank capital plays a significant positive role in improving bank financial performance.

This research provides both an academic and practical implications. It contributes to research concerned with how financial institutions should be managed following the Basel committee advice which called for more research in bank governance field. It also gives insights to policymakers in the UK banking industry on appointing a new board member or a bank CEO. It also encourages CEOs, directors and managers to improve their educational capabilities to enhance their decision-making. Overall, this research helps in enhancing banks understanding in relation to the development of a corporate governance mechanism.

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