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DOES DIVERSITY ON BOARDS IMPACTS

UK BANKS PERFORMANCE?

Comparison between multinational banks and national coverage ones

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Being the board of directors at the heart of any company, the importance of understanding which impact the characteristics of its members have in terms of profitability turns out important. Therefore, this work project answers two strategic questions: (1) Does diversity on boards of directors impact UK banks performance? (2) Does diversity impacts equally both UK multinational and national coverage banks' performance? Through the estimation of a multiple regression model, the conclusion that diversity factors impact UK banks performance was reached. Nevertheless, there was no statistical significance to conclude that board diversity characteristics vary in the case of multinational companies.

Key Words: Corporate Governance, Board diversity, Profitability, Multinationalism

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INTRODUCTION

The board of directors lies at the heart of any company's decision making body. After all, it is responsible for approving major decisions, as well as to manage and change the top management team. However, board's role has been raising divergent points of view, never reaching a total consensus. Many were the perspectives discussed throughout the years, nevertheless two of those theories have been deserving a bigger focus: the Agency Theory and the Resource Dependence Theory. Agency Theory, defends that the main role of the board is to monitor the board's performance as a way to reduce the agency costs and therefore, improve firm's performance (Eisenhardt, 1989; Jensen and Meckling, 1976). On the other hand, the Resource Dependence theory (Daily et al., 2003; Dalton et al., 1999; Johnson et al., 1996; Muth and Donaldson, 1998; Pfeffer and Salancik, 1978) mentions that directors can provide useful resources, such as networks of contacts, advisory expertise and counseling, which would be crucial to enhance firms' performance. Based on this theory, board's diversity characteristics regarding the high job-related factors would be extremely valuable for the company's performance. Although developed separately, there are studies that try to connect the two theories. Thus, board members' capital is directly related with its monitoring function, as well as with the provision of valuable resources (Hillman and Dalziel, 2003), meaning that board members professional experiences and ties to relevant organizations are directly related with its monitoring and facilitating role, which will positively impact company's performance (Dalton et al., 1998 and 1999).

Bearing in mind the importance of board of directors' composition to determine firm's profitability, it is critical to understand which factors of that diversity have bigger impact on performance. In order to focus on a specific geographical area, and to avoid differences in the environments that firms might experiment, the institutions born in the UK banking sector were considered. Therefore, two strategic questions are addressed with this work project: (1) Does diversity on boards of directors impact UK banks performance?

And (2) Does diversity impacts equally both UK multinational and national coverage banks' performance?

In order to answer them, the several steps followed are described in this work project. In the first section, the existent literature regarding board diversity variables is exposed, as an attempt to understand how the research community have approached these topics throughout the years. In the second section, the methods and methodology is covered, describing the procedures and techniques followed, as well as explaining the main variables considered in the models. The third section goes through the main results that can be draw from the estimated models. Section four covers the main limitations of the regressions estimated. Lastly, in the fifth section one can find the overall summary of the discoveries of this thesis, as well as its contribution to both the body of knowledge and to the business world.

1. LITERATURE REVIEW

Even though the opinions on board's role are really diverse, the fact that the characteristics of board members matter have been saw as a consensus. Diverse group of directors will bring different assets to the company, which will be useful for the interaction of the firm with the external environment. Therefore, diverse boards consequently bring diversified resources for the company.

Many were the authors that described this diversity as a double-hedged sword. Two of the main benefits related with diversity would be the improvement of board's creativity and perspectives' diversity. According to Wiersema and Bantel (1992), more diverse groups will promote higher levels of creativity and therefore, produce a bigger range of solutions and viewpoints. Moreover, it was also concluded that members' sources of information are more diverse, avoiding biased decisions (Granovetter, 1973). Besides, board members' heterogeneity will allow the firm to access different types of resources, depending on their professional/academic backgrounds.

Each company has its own characteristics and objectives, therefore, the needs of each of them will be partially defined by the type of company that is under analysis. Thus, depending on the type of firm,

societal expectations regarding board diversity will have different relevance. Firms which investors are mainly institutions will typically care a lot more about directors' demographics, being diversity a mean to acquire better reputation among the public opinion. Not only the external expectations matter, but also the internal ones (i.e. the expectations of firm's collaborators and directors) have their weight. By increasing the diversity in the boardroom the firm will be signaling to the low-level employees that it is devoted to promote minority groups of workers (Ferreira, 2010).

Despite the benefits mentioned before, also disadvantages arise with diversity. The extreme focus on board diversity characteristics as criteria for selection may result in the choice of directors whose interests are not aligned with the shareholders' ones, increasing the room for conflicts of interest.

Still in line with the over consideration of diversity factors, it might happen that the elected board members have little experience, due to a short-supply of the desired characteristics. The example of women on boards can be considered one more time. As firms feel the need to increase the number of women on boards, they can start hiring people whose experience is reduced or limited just because there is a short supply of people with those demanded characteristics. Moreover, if it is the case of short supply, it might mean that the directors who have those characteristics accumulate many board assignments, reducing the effectiveness of their individual contributions. In addition, diversity might also bring communication breakdowns. Usually, the outside directors tend to rely on the executive directors' information. The latter ones, might perceive the cultural diversity as a divergence regarding different interpretations and opinions, and consequently become reluctant to share their thoughts. This behavior will therefore decrease the effectiveness of the board (Adams and Ferreira, 2007). Some authors argue that homogeneity regarding gender and professional background will increase the odds of directors expressing their concerns in meetings (Westphal and Bednar, 2005).

Regarding the characteristics of the board, there was a lot of research that was built in the latter 50 years. Many authors explored the argument that there must exist an optimal size for the board of directors. Some

found a positive and significant impact of board size in firm performance (Lopes and Ferraz, 2016). Nevertheless, bigger boards entails some disadvantages since communication, consensus and coordination are harder to achieve and free-ridding problems may arise with higher probability as the cost to any director of not exercising diligence will fall as the number of board members increase (Lipton and Lorsch, 1992). All these difficulties will generate less-efficient decision making (Jensen, 1993), reaching a point where inefficiencies overcome the previously presented advantages, generating lower levels of performance. Nonetheless, the optimal board size number never reached a consensus. Lipton and Lorsch (1992) claimed that eight to nine directors would represent the optimal point, while Jensen (1993) defends that the efficiency of the board would be reached with seven to eight directors. Indeed, Yermack (1996), Cheng et al. (2007) and Coles et al. (2008) found a negative relationship between board size and firm's performance. This result holds for UK firms (Conyon and Peck, 1998). Actually, many studies have reached the conclusion that board size is directly related with the firm's size, thus, as bigger and complex companies are, bigger will be its need for information (Lehn et al., 2004; Boone et al., 2007; Coles et al., 2008; Guest, 2008, and Linck et al., 2008).

One of the topics that rose bigger attention among the research community was the inclusiveness of women on company's boards. According to Mckinsey & Company (2015), the UK firms that bet on gender diversity at top level roles are the companies that verified the highest performance uplift. The same author also found that women are still underrepresented on firms, no matter the role level. Thus, it is firstly important to understand if the more gender diversified boards differ from the ones which are typically composed by men. Adams and Ferreira (2009) found that firms with female directors are bigger, have more business segments, and bigger boards. Furthermore, those firms present better performance when measured by the return on assets, as well as a less volatile stock return. Also Carter, Simkins, and Simpson (2003) found the same result, concluding that as the percentage of women on board increases, the market value of company increases as well. Nonetheless, in the later years it was found that the correlation

between board's gender diversity and firm's performance (measured by ROA) was negative and statistically significant (Adams and Ferreira, 2009). Besides the result, the authors concluded that the impact of board diversity (regarding gender) would depend on the type of firm: for some companies more female on board will be advantageous, for others not.

Also board's age diversity can be relevant when analyzing the influence of board's diversity on the performance. In the latter years, companies have been enriching age diversity as a goal or implemented policy. As the UK case exemplifies, the first code of Practice related with age diversity was written in 1999, specifying the set of measures to improve fairness and company's performance in some major processes of the company, such as the recruitment, training, among others, which will end up affecting the performance. According to Hong and Page (2004), a more diverse group of directors, regarding the age of its members, will be able to achieve a better solution for a complex problem. Also, Wegge et al (2008) found that age heterogeneity will improve the ability of groups to solve complex tasks. In line with the previous research, McIntyre et al (2007) concluded that bigger variations in director's age would generate low firm's performance. Lately, Dagsson and Larson (2011) concluded that as age diversity increases among the board, firm's performance would be positively impacted, effect that is more intense in small firms.

The long-standing literature regarding cultural diversity shows the impact it has on firm's performance. It usually identifies cultural diversity as being a double-edged sword. Actually, the more diverse the groups of directors, more varied will be the knowledge and perspectives brought by them (Nederveen Pieterse et al, 2013). Among this knowledge, information about operations in specific markets can exist, helping the firm managing its operations (Maznevski, 1994). On the other hand, when the group of directors are culturally diverse, frictions among the members might take place, and similar people, even though with different backgrounds, will feel associated to a group. This might lead to biased opinions, favoring the

group composed by more people (in-group) (Van Knippenberg et al, 2004). Consequently, information exchange flow might be affected (Nederveen Pieterse et al., 2013).

Lastly, in culturally diverse groups of directors, communication tends to be slower, more difficult, confusing and generally a source of misunderstandings (Doney et al., 1998). Amason (1996) found that diversity brings two forms of conflicts: cognitive conflict and affective conflict. This later one is more likely to be generated by culturally diverse groups, since different worldviews, beliefs, frameworks of thought, and decision making styles, among others, will turn affective conflicts more likely to appear.

Some years ago boards were saw as groups of people who came from similar backgrounds, that have followed a certain path across their academic life and who have worked in the same sectors or type of firms. Nevertheless, in the later years this trend have been changing. Carver (2002) defended that diversity will allow for a greater base of wisdom. Consequently, knowledgeable and experienced directors will be able to take advantage of their diversity factors, and use them to potentiate firm's profitability and success in the market (Westphal, Milton, 2000). Carver (2002) also found that executives with more diversified experience are more likely to ask difficult questions, consequently challenging the remaining firm's management group. Hambrinc and Mason (1984), and Carpenter, Sanders and Geletkanycz (2004) proposed that strategic choices are defined by the values and experiences of the members of the board. Therefore, one can conclude that experiences achieved in previous roles can contribute for the success of a company. Concluding, literature on background diversity was not fully explored by the research community, and therefore there is still room for a lot of work. Nevertheless, I believe that the impact of background diversity on firm's performance depends on the firm's goals. For example, companies which seek for internationalization, directors who ran internationalization processes for other companies in the past will probably be beneficial.

Another interesting factor is the impact of directors' pay on performance. The father of this field is undoubtedly Murphy. In 1990, with Jensen, a paper was wrote, in which they concluded that as the market

value of the company goes up by $1000, the salary of the executive directors would go up by $3,25. Due to their research, the compensation scheme of many executives was changed, putting a lot more emphasis on stock and stock options, since even though the relationship between fixed salary and firm's performance was verified, the relationship seemed not to be as strong as expected. Later on, Hall and Liebman (1998) found stronger relationships, which suggest that even small changes in performance can have a big impact on the executive director wealth over the years. Fernandes (2005) defended that non-executive directors pose some influence in the pay levels. It was found that as the number of non-executive members increase, the top-executive remuneration increases. This suggests that in order to foster the effectiveness of the monitoring role of the board, a firm must pay attention to the characteristics of the non-executive. In 2005, Brick, Palmon and Wald found that executive directors compensation is positively correlated with monitoring and effort needed by the companies to ensure its value maximization.

Overall, the position of the research community is that diversity matters when talking about profitable firms. McKinsey & Co. (2015) found that companies that have bigger ratios of gender diversity are 15% more likely to outperform the national industry median, whereas culturally diverse ones are 35% more likely to outperform the national market.

2. METHODS, DATA & METHODOLOGY

As mentioned in the beginning, the goal of this work is to understand if the differences regarding the diversity characteristics of boards of directors have impact and differentiate the performance of banks which operate locally from the ones that operate globally.

2.1. RESEARCH METHOD AND METHODOLOGY

In order to meet the previously mentioned purpose, the first step taken comprised the construction of the literature review, which was extremely helpful to understand which variables should be considered in the data base, in order to fulfill the aim of answering the strategic question posed in the beginning of

this work project. The literature considered, was mainly composed by papers, journal articles and books, which allows for an accurate justification of the reason why each variable should be under analysis, according to the method chosen (documentary analysis).

Bearing in mind the past research, a data base was built based on a list that was made available by the Bank of England, which encompasses all the institutions that operate in the United Kingdom's banking sector **(Appendix 1)** for the year of 2016 (116 institutions).

Having appointed the institutions under sampling, it was possible to access the values for each variable through the Annual Reports of each institution. For the cases in which the details regarding personal characteristics of directors, such as age or nationality, were not made available in the annual reports, Bloomberg and Endole webistes were consulted.

The chosen time range was of three years, starting in 2013 until 2015, since these are the three last reports that are available for the majority of the firms. The choice of a three-year analysis was done due to the fact that diversity in board composition are increasingly being implemented, and therefore, using only a one-year range would not allow to understand the full effects of board diversity characteristics, neither its impact on profitability. Nevertheless, it is important to mention that some of the banks did not made available the annual reports for the year of 2013. Thus, on those cases, the financial statement information was possible to access through the 2014's report, but for the board related variables an assumption was made: the characteristics of the board would be assumed to be the same as the verified for the next year (2014). This assumption can be taken, since the board of directors do not change significantly from one year to the other.

In addition, there was an effort to consider firms with similar size. Nevertheless, it was not possible since there are some big banks that must be included in the analysis, such as Lloyds bank, which size differs from the majority of the remaining institutions. Nevertheless, institutions which assets are lower than

20 million were left out of the model. Lastly, some of the companies that are included in the list produced by the Bank of England were not considered, because their annual reports were not publicly available. Thus, from the list of banks composing the UK's banking sector, only 86 out of the 116 in total were included in the model.

Having the data set completed, least square method was used to compute the model in order to create the Multiple Regression Model. Panel data considering fixed period effects were also incorporated in the estimation. Panel data allows the researcher to control variables that are not easy to observe or to measure such as cultural factors, or to control variables that suffer changes over time but not across entities. Accordingly, the model was estimated and interpreted. After reaching the results, conclusions were draw taking into consideration the literature review developed before.

2.2. MEASUREMENT OF THE MAIN VARIABLES

2.2.1. Firms performance: ROA and ROE

Many of the analysts and investors tend to use return on equity to access firm's profitability. Most of them defend that Return on Equity (ROE) overcomes the Return on Assets (ROA) drawbacks.

Return on Assets (ROA) measures how profitable a firm is relative to its total assets (**Appendix 2**), and therefore one can understand which part of the earnings were generated by the invested capital. The presented performance indicator encompasses the benefit of being less sensitive to leverage than ROE. Nevertheless, it also presents drawbacks that were heavily explored by the research community, namely the fact that it is highly sensitive to working capital. Bearing in mind the definition of working capital (**Appendix 3**), one can defend that it does not impact financial institutions since the networking capital for these type of companies is really reduced. Nevertheless, in order to minimize any additional risks that may arise from the use of ROA, a model using ROE as the dependent variable was also built. On the other hand, the ROE (**Appendix 4**) is similar to the company's required return on equity. It is the

amount of net income that is returned as a percentage of shareholders' equity. This indicator is able to avoid some of the drawbacks presented by ROA, even though it has reduced impact in this analysis. Nonetheless, at the same time it reduces the exposure to working capital variations, it is highly affected by the firm's leverage levels. Moreover, a company with a high ROE might not be able to see its benefits immediately, and therefore, in some cases it might not be the most accurate proxy to access firm's profitability. Therefore, in order to understand which should be the metric used to measure firm's performance, a chronological analysis was made (**Table 1**).

Study	ROE	ROA
Bozec (2005)	✓	
Van Ees et al. (2003)	✓	
Guest (2009)		✓
Wintoki et. Al (2007)		✓
Adams and Mehran (2005)		✓
Bennedsen et. al. (2008)		✓
Cheng et. al. (2008)		✓

ROE (Return on Equity) is measured by the ratio between a firm's fiscal year net income and the shareholder's equity (book value)
ROA (Return on Assets) is measured by the ratio between firm's income before extraordinary items and the book value of firm's assets.

Table 1 - Performance Variables used in previous empirical studies

Bearing in mind the previously presented analysis, one can conclude that both ROA and ROE are accepted variables to measure firm's performance, given that both were previously used by the research community. Even so, it is worth to highlight that, as it can be seen in the table above, ROA is more used than ROE.

2.2.2. Firm Size: Assets

According to Berk and DeMarzo (2014), assets are "the cash, inventory, property, plant and equipment, and other investments a company has made". It is usually used as a proxy to barely measure a firm's size, and therefore it makes sense to include this variable in the model.

Diverse empirical studies developed in the later years have explored the premise that larger firms will

be able to obtain the positive effects coming from economies of scale (Lopes and Ferraz, (2016), Alexiou and Sofoklis (2009) and Iannotta et. al. (2007)). Nevertheless, the oldest research is more conservative in what concerns the gains that arise from the firm size, and have been defending that large and small banking sector companies typically have relative flat u-shaped average cost curves, which means that as the production or business volume increases, the marginal increase in profitability is residual and reduced. Thus, no unanimity was achieved. According to Berger and Humphrey (1994), only small banks have the potential to enjoy from scale efficiency gains. In contrast, larger banks may enjoy from economies of scope, through which the provision of joint services can be an example. In deepness, Barros et. al (2007) defend that big and diverse banks tend to perform poorly than small specialized banks since the latter ones are better able to reduce the problems arising from asymmetric information, and therefore, better manage the credit granted. Overall, one can conclude that the relationship between firm size (measured by assets) and its profitability is not linear. Nevertheless, it is worthwhile to include this variable in the model, as an attempt to find and clarify this relationship.

Bearing in mind the just mentioned impact of firm size in profitability, the variable Log(ASSETS) was created as continuous variable. Stressing the diversity of values that this variable can assume, there was the need to transform this variable into a logarithm in order to minimize its dispersion.

2.2.3. Profitability measure: Profit before tax

Profit before tax (PBT) measures the firm's proceeds without considering fiscal implications. By deducting all the expenses that the firm incurs to operate, including interest expenses and operating expenses, one can reach its value. The advantage of considering profit before tax instead of other measures such as Profit After Tax or EBITDA, is that it allows both internal and external financial data users to analyze the firm's operating performance, isolating it from different fiscal systems. Thus, the possibility to accurately compare firms is another of the advantages of using PBT. By removing fiscal benefits or impositions, which can exist depending not only on the industry, but also on the ownership

structure of the firm among many other factors, one is avoiding to consider, for example, that a firm with tax benefits has bigger net income and therefore, its operations generate bigger amounts of cash when it might not be the case. The importance to minimize the impact of taxes in the banking sector increases as the sector is subject to regulation that ends up influencing banking institutions' liability structures. Actually, minimum capital requirements impose limits in the diversity of alternative sources of financing other than equity, consequently decreasing the lending capacity of a bank (Gambacorta and Mistrulli, 2004).

Based on the explanation provided before, the continuous variable Profit before tax (PROFIT_BEFORE_TAX) was included in the model.

2.2.4. Firm Footprint: Coverage

Coverage variable was created to answer the purpose of this thesis: to understand the differences in terms of board composition between global banks and the ones that operate locally, that might explain the differences between them in terms of profitability. The concept and definition of "global" is subjective. Nonetheless, for this purpose it was defined as banks that operate both in the UK and outside. In line with this assumption, a dummy variable was created – COVERAGE. Hence, when a bank operates in more countries than just the UK, it assumes the value of 1, while in the remaining cases it assumes the value of 0.

Literature can be found regarding this topic. Nevertheless, no consensus was reached until now: some found a positive relationship between multinationality and firm's performance (Grant et al, 1988), while other authors defend that it has negative impact on performance (Denis et al., 2002). Still, others defend that multinationality has positive impact in the performance when firms are walking through its early stages, which incrementally decreases as the firm grows (Gomes and Ramaswamy, 1999).

Although the impossibility to reach a consensus, the inherent expectation of this variable is supported by the latter theory. As mentioned in the sub section 2.2.2., some authors defend that the average cost

curve of banks is a relatively flatter u-shaped curve, and therefore, it make sense to infer that in the very early stages of the firm's life cycle, multinationality generates impact on profitability, which starts dissipating as the company grows. It might even be the case that the institution growth is so big that it turns out to be inefficient, consequently eroding its profitability. Thus, the previously presented literature and expectations explain why this variable was included in the model.

2.2.5. Board Diversity related variables: Board age diversity, Board size, Payroll policy, Gender diversity and Cultural diversity

The remaining variables which are related with board characteristics and diversity, were focus of bigger attention in the first section, therefore no further literature will be covered in the present one. Thus, only the expectations regarding the impact of these variables on firms' profitability will be explored.

Board tenure was included in the final model through the creation of the variable Average_Age_Years, which was built taking the arithmetic average of each board's age members. Thus, based on the literature, one can infer that the effect of board age diversity on performance is ambiguous, since some authors defend a positive relationship between older boards and firm performance (Hong and Page, 2004), while others consider that this relationship is negative (Wegge et al, 2008).

Board size was also included in the model. According to previous empirical research, the increase of the size of the board will entail both advantages and disadvantages, as mentioned before. Nevertheless, the optimal number of directors never reached a consensus. According to Lehn et al. (2004) among many other authors, the optimal size of the board will depend on the characteristics of the firm such as: complexity of the business or intrinsic needs of a specific industry. Hence, the continuous variable included in the model: Nr_Of_Members, reflects the number of directors that form the board of each of the considered firms.

Also directors' payroll policy have impact on firm performance. Based on the research presented above (Murphy and Jensen, 1990; Brick, Palmon and Wald, 2005) one can expect that bigger directors'

remuneration policy will improve the financial performance of the firms, as the quality of the intervention and contribution of the members suffer an increase in its quality. In order to verify if this relationship holds, the variable: Log(AverageFees) was created. This variable results from the computation of the arithmetic average of the fees received by each board member. The logarithm was applied, in order to minimize dispersion that the variable assumes in the considered sample.

Gender diversity is one of the topics that brought most of the attention of the research community in the latter years. Nevertheless, the opinion diverge. A proof of this, is the research papers developed by Carter, Simkins and Simpson (2003) and Adams and Ferreira (2009) that provided opposite results. In the first one, the results achieved shown that firms with bigger ratio of women tend to present better performance, while in the second one it was concluded that the correlation between gender diversity and firm performance is negative. Therefore, one can conclude that the impact of gender diversity on company's performance cannot be exactly predicted, being this relationship analyzed in the models estimated. In order to include it on the model a new variable was created, called Nr_Of_Women, which quantifies the number of women existent in each firm board.

Cultural diversity was also included in the model. According to past research, cultural diversity was described as a double hedged-sward, since it comprised both advantages and disadvantages that will end up affecting firm profitability. **Appendix 5** summarizes them, based on the literature referred in the first section. As a result, the expectations regarding the impact of cultural diversity on firm's performance are uncertain. Nonetheless, the model defended in this work project attempts to investigate, among many other topics, what would be the impact of cultural diversity on firm's profitability. To include these potential effects on performance, the variable Cultural_Diversity was included in the model, as a dummy. It assumes the value of 1 if the board members are at least from two different nationalities.

3. RESULTS AND DISCUSSION

3.1. MULTIPLE REGRESSION MODELS

Based on the overview introduced in the previous pages of this work project, two models were built: one considering ROA as dependent variable (Model 1), and an additional one considering ROE (Model 2). Through both, the pretention of explaining what is the impact of board diversity in firm performance was met.

In order to ensure that the models were significant, and that accurate conclusions can be draw from them, the R^2 was analyzed. R^2 indicates the proportion of the variance of the dependent variable that is explained by the conjunction of the dependent variables. Thus, it is widely used to access model's reliability, in the sense that greater it is, more reliable will be the model. Model 1 reached an R^2 of 0.7014 (**Table 2**), which means that 70.14% of ROA's variance is explained by the model. Model 2 reached an R^2 of approximately 0.8904 (**Table 2**)), which means that 89.04% of the ROE's variance is explained by the model estimated. Thus, both present security to draw conclusions. Nevertheless, and since the variables included are almost the same, only ROE model (Model 2) will be extensively analyzed. Note that the results obtained in both models are the same, only coefficients change, with the exception of Average Fees that was statistically significant in Model 1, but not in Model 2. For that reason, to draw conclusions on that topic, Model 1 will be used (Dependent Variable ROA). Thus, the resultant models were, respectively:

$$
\begin{aligned}
\textbf{Model 1}: \ ROA = {} & \beta_0 + \beta_1 Log(Assets) + \beta_2 Average\_Age\_Years + \beta_3 Log(Average_{Fees}) + \beta_4 Coverage \\
& + \beta_5 Nr\_of\_Members + \beta_6 Number\_of\_Women + \beta_7 Profit\_Before\_Tax \\
& + \beta_8 Cultural\_Diversity + \beta_9 \cdot Cultural\_Diversity \cdot Profit\_Before\_Tax + \beta_{10} \\
& \cdot Nr\_of\_Members \cdot Log(Assets) + \beta_{11} \cdot Nr\_of\_Women \cdot Average\_Age\_Year + \beta_{12} \\
& \cdot Nr\_of\_Members \cdot Coverage + \varepsilon
\end{aligned}
$$

$$\textbf{\textit{Model 2}:} \quad ROE = \beta_0 + \beta_1 Log(Assets) + \beta_2 Average\_Age\_Years + \beta_3 Coverage + \beta_4 Nr\_of\_Members$$
$$+ \beta_5 Number\_of\_Women + \beta_6 Profit\_Before\_Tax + \beta_7 Cultural\_Diversity + \beta_8$$
$$\cdot Cultural\_Diversity \cdot Profit\_Before\_Tax + \beta_9 \cdot Nr\_of\_Members \cdot Log(Assets) + \beta_{10}$$
$$\cdot Nr\_of\_Women \cdot Average\_Age\_Year + \beta_{11} \cdot Nr\_of\_Members \cdot Coverage + \varepsilon$$

Equation 1 and 2 – Regression Models: Model 1 (Dependent Variable: ROA) and Model 2 (Dependent Variable: ROE)

It is still important to highlight that the variables included in the model do not present collinearity issues, as it can be confirmed in **Appendix 6**. By analyzing variables correlations, one can conclude that none of the ones that were included in the estimation model present a correlation coefficient bigger than 0.5. In regard to the global significance of the model, one can attest that it is significant at 1% confidence level, giving that the $H_0: \beta_1 = \beta_2 = \cdots = \beta_{11}$ or $\beta_{12} = 0$, in the case of Model 1, is rejected and at least one of $\beta_i \neq 0$. This result can be conferred by looking at the value of Prob (F-Statistics) (**Table 2**), which indicates that for both model 1 and 2, it is equal to 0. Additionally, also the variables included in the model are individually significant, presenting p-values bellow 0.10, which means that they are significant for a 90% confidence level. Also residuals' correlation was analyzed through Durbin-Watson test, leading to the conclusion that there is no evidence that the model residuals are correlated, since the Null Hypothesis is rejected $(H_0: \rho = 0)$. Thus, Model 1 and 2 present, respectively, a Durbin-Watson statistic of 2.15, and 1.69, which lie in between the intervals considered by literature to determine if the residuals are correlated (Savin and White).

Lastly, some control variables were included in the model, namely: Log(Assets) and Profit_Before_Tax. The inclusion of these variables is justified by the need to stabilize the model, since they end up affecting the dependent variable, and its omission could distort the relationship between the independent variables and the dependent ones. Reaching a model that verifies the conditions to be considered valid, conclusions were draw. Descriptive statistics are presented in the **Appendix 7** and Interpretations of simple variable coefficients are presented in the **Appendix 8**.

Method: Panel Least Squares

Periods included: 3

Variable	Model 1				Model 2			
	Dependent Variable: ROA				Dependent Variable: ROE			
	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-0,0834478	0,322396	-0,258929	0,7959	1,244409	3,869729	0,321575	0,7480
Log(Assets)	0,072026	0,018477	3,898048	0,0001	0,667070	0,208353	3,201634	0,0015
Average_Age_Years	-0,009437	0,00504	-1,872501	0,0623	-0,111214	0,060459	-1,839493	0,0670
Log(Average_Fees)	0,023089	0,010556	2,187186	0,0297	Not included in the model			
Coverage	-0,582927	0,092381	-6,310018	0,0000	-5,565879	1,107887	-5,926488	0,0000
Nr_of_Members	0,071977	0,010903	6,601491	0,0000	0,720129	0,127667	5,640705	0,0000
Nr_of_Women	-0,290959	0,141517	-2,056009	0,0409	-4,632671	1,690775	2,739968	0,0066
Profit_Before_Tax	0,000652	0,0000334	19,54306	0,0000	0,017053	0,000401	42,54203	0,0000
Cultural_Diversity	0,077442	0,022681	3,414458	0,0007	1,345585	0,270851	4,967983	0,0000
Cultural_Diversity*Profit_Before_Tax	-0,000613	0,0000347	-17,70027	0,0000	-0,016672	0,000416	-40,06321	0,0000
Nr_of_Members*Log(Assets)	-0,010263	0,001511	-6,794403	0,0000	-0,106165	0,017733	-5,986788	0,0000
Nr_of_Women*Average_Age_Years	0,005285	0,002510	2,105471	0,0363	0,085038	0,029997	2,834897	0,0050
Nr_of_Members*Coverage	0,063176	0,008860	7,130377	0,0000	0,719451	0,106175	6,776064	0,0000
R- Squared	0,701390				0,8903830			
Adjusted R-Squared	0,684115				0,884590			
Prob (F-Statistic)	0,000000				0,000000			
Durbin-Watson Stat	2,149473				1,6910480			

Table I – Estimation Results for UK Banking Firms' Profitability

3.2. DOES DIVERSITY ON BOARDS IMPACT UK BANKS PERFORMANCE?

Regarding the impact of assets on performance measured by Return on Equity, one can infer that bigger the firm's assets are, more profitable the firm is (Model 2: $\beta_1 = 0.6671$). More precisely, according to the estimated model, a 1% increase of firm's assets, will generate a 0.6671 unitary increase of ROE (**Appendix 8**). The verified result is in accordance with the research developed by Alexiou and Sofoklis (2009), and Iannotta et. al. (2007). Thus, it can be concluded that bigger firms have the opportunity to enjoy cost efficiency benefits that arise from the exploitation of economies of scale. Nevertheless, there is no statistical evidence to verify the theories defended by Berger and Humphrey (1994) that only small banks would be able to enjoy efficiency gains, whether large banks would be able to enjoy gains coming from economies of scope.

Still in line, also Profit Before Tax (PBT) allows for the same extrapolation, even though related not with the firm size, but with its capacity to generate value through its activities, both operating and financing ones. Thus, as PBT increases, firm profitability also increases, being an increase of one monetary unit in PBT able to generate a marginal increase of 0.0171 in ROE. Bearing in mind the concept and formula behind this performance ratio, one can conclude that as PBT increases, bigger will be the Net Income, even though the tax burden that firm will carry is proportionally bigger. Having a bigger Net Income, *ceteris paribus*, will, by the formula (**Appendix 2 and 4**), increase both performance measures due to an increase of the equation numerator.

Entering into the board diversity field, important conclusions can be taken. Number of members present a positive coefficient, which leads to the conclusion that as the size of the board increases, also the firm's performance will increase. Actually, the increase of one member in the firm's board, will increase ROE by 0.7201. The just mentioned result stand in accordance with the theory defended by Lehn et al (2004), which states that bigger the board is, bigger will be the information gathered, and therefore, valuable will be the contribution of the board to increase firm performance. Additionally, it is also possible to confirm the theory defended by Lipton and Lorsch (1992) that there is an optimal size for the firm's board which will maximize the firm profitability, depending on the size and complexity of the company. This conclusion can be draw through the analysis of the composite variable Nr_of_Members· Log(Assets), which presents a negative coefficient ($\beta_9 = -0,106165$). Thus, through the model, one can conclude that as the board size increases for the same amount of assets, *ceteris paribus*, the incremental positive effects generated by size will be decreasing. This conclusion also supports the theory defended by Yermack (1996), Conyon and Peck (1998), Cheng et. al. (2007) and Coles et al. (2008).

In order to extract conclusions from the model regarding board members age diversity, an assumption was made: as the average age of the board members increases, older the board will be, and therefore lower will

be the age diversity among the members. Looking at the model designed, one can conclude that as the board average age increases, firm performance will decrease $(\beta_2 = -0,111214)$. Hence, one can conclude that as age diversity decreases, firm profitability will consequently decrease. The previously mentioned results chains the theories presented by Hong and Page (2004), Wegge et al (2008), McIntyre et al (2007) and Dagsson and Larson (2011).

Regarding gender diversity, the conclusion that can be draw from the analysis performed is that as the number of women on board increases, the profitability of the firm decreases $(\beta_5 = -4,632671)$. This result contradicts the strong believe defended by the majority of the research community that gender diversity guarantees superior board and firm performance. Consequently, there was no statistical evidence to support the study developed by Carter, Simkins, and Simpson (2003), neither the one developed by McKinsey & Company (2015). Nevertheless, it is in accordance to what was defended by Adams and Ferreira (2009). Even though contradictory, it is important to bear in mind that this topic was only object of research in the latter years due to the increasing importance of gender equality discussion, being its implementation in the enterprise world a relatively newly born reality. Thus, it might be the case that the sample does not perfectly reflect the effects of women on boards. In addition, it was also important to understand in which parameters of board diversity, women could generate positive contributions to firms' profitability. Among the diverse trials regarding this topic, the only composite variable that shows conclusive and significant results was: $Nr\_of\_Women \cdot Average\_Age\_Years$. The model demonstrates that in the case of older boards, women end up generating positive impact on profitability partially attenuating the negative impact posed by older directors $(\beta_{10} = 0,0850)$.

Also cultural diversity was object of study in this work project. It is possible to conclude that culturally diverse boards have a positive impact on the overall performance of the company $(\beta_7 = 1,345585)$. The presented results stand for the theories defended by Maznevski (1994), Carver (2002) and Nederveen

Pieterse et al (2013). Diversified knowledge and experience will allow firms to attain higher levels of profitability. Nevertheless, this result is attenuated in the cases that companies are able to generate bigger amounts of money through its operational and financing activities ($\beta_8 = 0,106165$). Thus, one can infer that as firms grow the incremental increase of one director from a different nationality in the board, reduce its profitability. Thus, the contribution of multicultural elements might not be relevant when the company attains a certain level of profitability.

Despite the impossibility to draw conclusions regarding the impact of directors' payroll policies on firm profitability through Model 2, Model 1 (using dependent variable as ROA) was analyzed. Actually, it suggests that higher payments will allow the firm to reach higher levels of performance. This theory corroborates the one defended by Murphy and Jensen (1990), Hall and Liebman (1998), and Brick, Palmon and Wald (2005). Thusly, it is rational to defend that higher compensations motivate directors to better perform their roles, minimizing the risks of free-rider behaviors.

3.3. DOES DIVERSITY IMPACTS EQUALLY BOTH UK MULTINATIONAL AND NATIONAL COVERAGE BANKS PERFORMANCE?

In order to understand if diversity equally impacts multinational UK banks and National coverage ones, variables comprising coverage were analyzed.

Based on the results provided by the model estimated, one can conclude that multinational UK financial institutions are less profitable than the ones which operate only in the UK banking industry ($\beta_3 = -5,565879$). The just mentioned interpretation corroborates the evidence presented by Denis et. al (2002). Notwithstanding, it was not possible to gather statistical evidence to confirm that only banks in the first steps of growth are able to enjoy the performance advantages of being global. Actually, the only statistically significant relation that was possible to reach with the presented models was that, in the case

of multinational financial institutions, bigger boards will attenuate the negative impact that multinationality exerts on firm profitability ($\beta_{11} = 0,719451$).

Being none of the other relationships between coverage and the remaining board diversity variables statistically significant, and bearing in mind the previously presented interpretation of the model, one concludes that despite the fact that board diversity characteristics impact UK banking institutions profitability, the differences between multinational and national coverage ones are not substantial.

4. LIMITATIONS

Although the research has reached its aims, there are some unavoidable limitations. The size of the sample was relatively small due to the fact that the focus of the study was on the financial institutions operating in the United Kingdom banking sector only. Moreover, the fact that the sample includes a big number of small (in size) building societies was a difficulty factor in what concerns finding low job-related specific information, such as the age of the board's members, their occupation, among others. Time range considered can be seen also as a limitation, since three years might not be sufficient to catch the entire effect of changes on boards of directors.

Measurable factors, such as age, board size, professional/academic background or average annual fees, were considered in this research. Nonetheless, there are many other factors such as attendance to the board meetings, individual members' assets (e.g. network of contacts), or leadership styles, which were not considered in this study because of its subjectivity or complexity to measure. External environmental changes were also not considered in the model developed, such as economic conditions, and therefore it represents a limitation for the research since the external factors also impact each company's business.

Thus, for the study to be more effective and accurate it should have included personal interviews with some groups of UK's banking institutions members in order to measure the previously mentioned subjective factors.

5. CONCLUSIONS

5.1. GENERAL CONCLUSIONS:

The objective of this work project is, through the analysis of secondary data, to evaluate the impact of board diversity characteristics on firm's performance. Therefore, two questions were posed in the beginning of this thesis: (1) Does diversity on boards of directors impact UK banks performance? (2) Does diversity impacts equally both UK multinational and national coverage banks' performance?

By answering the two questions presented above, one is exploring the relation of board's diversity characteristics, which in this work paper were considered to be: Average_Age_Years, Average_Fees, Nr_of_Members, Nr_of_Women, Cultural_Diversity, and the composite variables generated by interactions among them, with the performance measures: Assets, Profit_Before_Tax, considering as dependent variables: ROE and ROA. In order to access the relationship between those characteristics of the board and its impact on performance of multinational UK banks, Coverage variable was used, as well as the interactions between Coverage and the remaining board diversity characteristics, from which the only significant composite variable achieved was Coverage·Nr_of_Members. All these analysis was conducted using a time range of 3 years.

Thus, the conclusions reached answer the previously mentioned questions: **(1)** Board of directors diversity is positively impacted by: firm size (measured through Log(Assets)), size of the board (measured by: Nr_of_Members), and culturally diverse members (measured by: Cultural_Diversity). On the other hand it is negatively impacted by: age of the board members (measured by Average_Age_Years), and gender diversity (measured by: Nr_of_Women); **(2)** No evidence of significant differences between global and multinational UK financial institutions and national ones. The only statistically significant conclusion that was draw was that bigger boards will partially deflate the negative effect of international coverage.

Bearing in mind the conclusions reached, both questions were answered and therefore, one can state that the purpose of this work project was met.

5.2. CONTRIBUTIONS TO BOTH THE BODY OF KNOWLEDGE AND BUSINESS WORLD

Even though corporate governance fields have been the object of study of a lot of research, this work paper brings new factors that might exert impact on profitability, such as coverage.

Through the procedures taken, this study reached conclusions that were not widely agreed among the body of knowledge, increasing the existent evidence regarding not so popular results. Among these results one can highlight the impact of women on boards, in firm profitability, which was found to be negative. As it is known, due to gender equality discussion, this topic has been increasingly being discussed throughout the later years, mainly reaching the conclusion that women generate positive impact on profitability. Moreover, despite the fact that a lot of the research developed regarding board diversity, there were few studies that focused on the United Kingdom geographical area. Thus, this paper generates more evidence on this topic for the UK research community.

Lastly, the inclusiveness of coverage variable, and the trial to understand if there were differences in diversity that were able to explain the differences in terms of profitability between multinational banks and national coverage ones, was an innovative field of study.

Therefore, this study provides a useful summary for the UK financial institutions, regarding the characteristics that should be found in a board with the intent to maximize its profitability. Despite the fact that firms are partially impacted by the external environment conditions, there are some characteristics that firms, in special banks, should look out when electing its directors.

Notwithstanding, the present work project increases the base of knowledge on, not only, the impact of board diversity on profitability, but also on the impact of firm's footprint on profitability. Lastly, it provides room for further investigation on this latter topic (Firm's business footprint).

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