DIVERSITY ON BRITISH BOARDS AND PERSONAL TRAITS THAT IMPACT CAREER PROGRESSION FROM AIM TOWARDS FTSE 100

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Abstract

This study proposes a new approach to examining executive remuneration and manager characteristics disaggregated by market index peer clusters and analyses personal attributes that differentiate managers across companies of different market caps (proxied my market indices such as FTSE 100, FTSE 250, FTSE SmallCap, and AIM). Our sample is composed of biographical data on 790 executive directors from 125 UK financial firms covering a 2004-2016 time period. The results show that network and education are the most important factors for career progression. On average, FTSE 100 executive directors are three times better connected and two times better educated than FTSE SmallCap and AIM board members. The larger the firm, the more diverse the board with more international (non-British) and female directors (even though male executives mostly dominate). The higher position is associated with greater age, while new executives tend to be younger and better connected. We highlight a change in the new managers' skill-set after the financial crisis which may presumably be explained by risk aversion. New directors appointed after 2008 are, on average, older and better educated. Even though after the crisis we document that all the boardrooms, except FTSE SmallCap, appear to have become more gender diverse, the female presence in the boards is scarce and the highest number of women was mainly employed during the financial crisis. After 2008, British boards have become less nationality diverse. Thus, for the purpose of maintaining companies' competitive advantage in increasingly diverse markets, it requires further attention from policy regulators.

Keywords: Board Composition, Board Diversity, Personal Characteristics, Executive Directors, Remuneration, Peer Benchmarking

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1. INTRODUCTION

The average remuneration of FTSE 100 chief executives is 160 times the average UK salary (Steiner, 2017). Excessive remuneration packages are expected to reflect unique personal attributes of top board members and should vary among different echelon firms. Thus, what are the personal traits

that differentiate members of top executive boards from other hierarchy boards? What are the personal characteristics that drive career progression and raise executive pay? The FRC UK reports (2016, 2018) and Parker (2017) emphasise the importance of recruiting board directors from a diverse pool. They state that as the composition of the society in the UK has changed over the past forty years, boardrooms of Britain's leading companies are expected to become more diverse to reflect the make-up of society and have a more diversified talent pool to survive in the competitive market. However, has the composition of the British boards changed over time? Are they in fact gender and nationality diverse?

In this paper, we aim to investigate the personal characteristics of executive directors in the British boardrooms which impact executive pay. We assess whether there are some personal traits that drive career progression from AIM (Alternative Investment Market) towards FTSE 100 companies and whether those traits (hiring requirements) have changed after the financial crisis. The analysis is conducted for new entries and existing members and shows whether diversity structure in the boards of Britain's companies has changed/improved over time.

The major strand of academic literature has analysed CEO/corporate board characteristics and its impact on firm performance and corporate policies (Malmendier & Tate, 2005; Ben-David, Graham, & Harvey, 2013, Serfling, 2014; Jermias & Gani, 2014; Mateus, C., Mateus, B. I., & Hall, 2015; Belhaj & Mateus, 2016; Fernandes, Farinha, Martins, & Mateus, 2017, 2018). A significant strand of academic research has examined the relationship between CEO/board members' characteristics and executive pay. Graham, Li, and Qiu (2012) have researched the direct influence of firm and manager-fixed effects on executive compensation (Bertrand & Schoar, 2003; Demerjian, Lev, & McVay, 2012). Nguyen, Hagendorff, and Eshraghi (2014) find that age, education, and the prior work experience of executives create shareholder wealth while gender is not linked to measurable value effects. Falato, Li, and Milbourn (2015) state that CEO talent (proxied by media coverage, age at which an executive becomes a CEO, and educational background) represents an important determinant of pay.

Recent studies have highlighted that firm's benchmark against peers in order to determine executive pay (Bizjak, Lemmon, & Naveen, 2008; Faulkender & Yang, 2010; Albuquerque, De Franco, & Verdi, 2013; Skovoroda & Bruce, 2017). These studies have shown that firms tend to choose peers of similar size, profitability, performance, and business complexity. Bizjak, Lemmon, and Nguyen (2011) find that firms use benchmarking or peer groups to determine the levels of executives' salary, bonus, and option awards. Thus, firms in the S&P 500 are more likely to choose other S&P 500 firms as peers.

Based on the above and the research of Linck Netter, and Yang (2008), Falato Li, and Milbourn (2015) who state that firm size is an important determinant of board structure and executive pay, we propose a novel approach of examining executive remuneration and manager characteristics disaggregated by market index peer clusters. We claim that the standard approach of measuring executive remuneration by estimating the aggregation of salary, annual bonus, stock awards, stock options, and restricted shares do not account for the other benefits and perks provided by the position, i.e. retirement benefits and pensions, free club memberships, corporate accommodation and security, corporate cars/aircraft, free tax preparation and financial counselling attributed to the executive rank. Therefore, we analyse board member personal characteristics associated with the executive pay among market index peer groups and identify personal attributes important for career progression from AIM firms towards FTSE 100.

This work adds to the previous literature on board characteristics and composition by analysing personal attributes that differentiate managers across companies of different market cap (proxied my market indices such as FTSE 100, FTSE 250, FTSE SmallCap, and AIM). It highlights managerial traits important for hiring decisions and provides insights on how the characteristics of executive directors change across different company hierarchies, and over time. Furthermore, we investigate whether UK top companies' boards comply with the FRC UK Code guidance on gender and ethnic diversity (also highlighted in the final report of the Parker Review Committee (Parker, 2017).

To examine the difference in managerial traits across different peer group boards, we split the complete detailed biographical data among 790 executive directors from 125 financial firms collected from BoardEx for the time period 2004-2016 into four major groups (market index clusters) – the AIM market, FTSE SmallCap, FTSE 250 and FTSE 100 – in accordance with the UK stock market index to which each firm belongs. To conduct our analysis, we apply the ordered probit model to the biographical data on board members and identify the most important for managerial labour market board characteristics that differentiate executive directors across index categories. The analysis of the personal traits is then performed for existing board members and new entries and controls for the change in executive attributes after the financial crisis.

To our knowledge, only a few existing studies have analysed executive characteristics and abilities for career advancement. For instance, Murphy and Zabojnik (2004) propose a model that helps to explain a CEO's external-internal hiring choice as a trade-off between matching and firm-specific skills. Kaplan, Klebanov, and Sorensen (2012) study the characteristics and abilities of CEO candidates for companies involved in buyout and venture capital transactions, relating them to hiring decisions and company performance. The research of Schoar and Zuo (2017) reveals the economic conditions when managers enter the labour market and have long-run effects on their career paths and managerial styles.

Our results show that network and education are the most important attributes both in terms of 'corporate hierarchy' (including executive pay) and new board member appointments. An additional degree qualification raises the chances of being on an FTSE 100 board by 5-10 per cent and improves the chances of being on the board of an FTSE 350 financial company by about 20 per cent. A similar pattern persists for network connections.

The average characteristics of the new entries differ from the existing board. A 'typical' new director is younger and much better connected. Those appointed after 2008 are, on average, older

and hold more degrees (except FTSE SmallCap group). This may indicate the evidence of risk aversion consistent with Berger, Kick, and Schaeck (2014) who states that older and highly educated executive directors reduce the risk of financial institutions. In line with previous literature on female risk aversion (Carter, Franco, & Gine, 2017; Martin, Nishikawa, & Williams, 2009; Mulcahy & Linehan, 2014), after the crisis, all boardrooms appear to be more gender diverse. However, the fraction of new female directors is scarce and the majority of them were predominantly employed during the financial crisis. As a warning sign we document that, except in the AIM category, the UK boardrooms became less nationality diverse after 2008. Our evidence shows that the larger the firm, the more educated and connected board members, and the more diverse the board with more international (non-British) and female directors.

This paper contributes to the discussions on what makes better boards (Ben-Amar, Francoeur, Hafsi, & Labelle, 2013) and expands upon the previous literature on managerial traits, the quality of board governance and UK board composition (O'Sullivan & Diacon, 2003; Dahya & McConnell, 2007; Malmendier, Tate, & Yan, 2011). It highlights executive characteristics important for hiring decisions and identifies personal attributes that differentiate the board of FTSE 100 from FTSE SmallCap and AIM market firms. This study is of interest to policymakers and regulatory boards as the results show that despite the FRC (2016) UK boards are not well gender and nationality diverse. Our novel approach of using market indices to define managerial peer groups can be used in further research on remuneration benchmarking.

The rest of the paper is organised as follows. The next section describes the rationale for the variables selection, background literature, and research expectations. Section 3 explains the data sample and variables construction. Section 4 presents the methodology and empirical results, while Section 5 concludes the study.

2. BACKGROUND LITERATURE AND RESEARCH EXPECTATIONS

A different board capability set will result in different decision-making and organisational outcomes. Therefore, a balance of the elements of board intellectual capital is required for carrying out a series of roles. Depending on the nature of these roles, the requirements for the different echelon executive directors may vary. The academic literature highlights that selection of the right executive directors with the desired characteristics for the role is crucial as it will have an impact on board effectiveness and the governance outputs of organisational performance (Nicholson & Kiel, 2004).

The existing literature emphasises the various factors in which potential employers might be interested. Fracassi and Tate (2012) highlight that network connections between management and potential directors influence director selection. A recent study of Crespí-Cladera and Pascual-Fuster (2015) shows that higher network activity of executive directors conveys to larger compensation figures. Shue's (2013) study shows that executive peer networks are important determinants of managerial decision-making and firm policies. Based on the above, we hypothesise that director network size is one of the main attributes in hiring decisions. Therefore, it is expected that highly connected executive directors have higher chances to be hired in FTSE 250 and FTSE 100 firms.

Hypothesis 1 (H1): The larger the firm, the more connected board members.

Some literature on CEO-specific heterogeneity documents the impact of education on corporate decision making. Sitthipongpanich and Polsiri (2015) claim that CEO educational background is one of the key determinants of firm policies and is essential to management appointments. Smith, N., Smith, V., and Verner (2006) document that education is a major factor considered by firms when appointing a CEO. Hitt and Tyler (1991) and Malmendier and Tate (2005) show that executives' level of education and educational background affect firm strategic decisions. Following this intuition, we believe that education is a factor that differentiates the managers of FTSE 100 from FTSE SmallCap and AIM market firms. In other words, we expect the top directors in FTSE 250, and in particular, the FTSE 100, to be the most qualified.

Hypothesis 2 (H2): The larger the firm, the more educated board members.

The next factor that we intend to test is Age. Thus, Yim (2013) highlights that age has one of the main impacts on corporate policies. Similarly, Agarwal, Driscoll, Gabaix, and Laibson (2009) state that the sophistication of financial decisions varies with age. Some literature suggests that age can reflect greater experience and skills (Sitthipongpanich & Polsiri, 2015). Furthermore, Shefrin (2005) provides evidence that personal risk-aversion appears to increase with age up until 70 years and then declines. Thereby, we suppose that top managers of the largest companies are older.

Hypothesis 3 (H3): A higher position is associated with greater age.

FRC (2017) and Parker (2017) emphasised the importance of ethnic and gender diversity in board leadership. It has been noted that UK boards should represent the society we live in and reflect international markets in which they operate. Thus, boards need to improve ethnic and gender diversity further to reflect their employee base and the communities they serve. Similarly, the work of Ben-Amar et al. (2013) discusses the need for a balanced board diversity that best serves the firm's purpose and obligations. Following these calls, we will then seek to analyse the current diversity levels in UK boardrooms and its historical changes. As has been previously documented (Singh & Vinnicombe, 2004; Brammer, Millington, & Pavelin, 2007) the presence of women in top UK boardrooms is scarce. However, the academic literature suggests that having women on corporate boards is beneficial to the shareholders. For instance, the study of Huang and Kisgen (2013) shows that men exhibit comparative overconfidence in significant corporate decision-making compared with women (Barber & Odean, 2001). The positive impact of gender diversity on board effectiveness in terms of its monitoring role and the quality of its decisions was highlighted in Adams and Ferreira (2009), Nielsen and Huse (2010). According to Carter, Simkins, and Simpson (2003), the proportion of women and minorities on boards increases with firm size and board size but decreases as the number of insiders increases. We

believe that the proportion of women on board among the index clusters (AIM, FTSE SmallCap, FTSE 250, and FTSE 100) may both vary and enlarge presumably in larger and more internationally diverse firms.

Hypothesis 4 (H4): Boards in larger firms are more gender diverse.

In addition, we want to analyse whether nationality diversity among executive directors differ between the top and bottom of market cap companies. The existing literature has documented a positive relationship between top management team nationality diversity and firm performance (Nielsen, B. B., & Nielsen, S., 2013). Another strand of academic literature states that nationality plays an important role in managerial attributes and decision-making processes (Estélyi & Nisar, 2016). Moreover, Graham, Harvey, and Puri (2013) find US CEOs differ significantly from non-US CEOs in terms of their underlying attitudes. In line with Hahn and Lasfer (2016) who affirm that large listed companies are not necessarily listed in the country of origin and, in general, have a higher proportion of foreign directors, we would expect the boards of FTSE 250 and FTSE 100 to be more nationally diverse in relation to those in AIM and FTSE SmallCap firms.

Hypothesis 5 (H5): Boards in larger firms are more nationality diverse.

3. DATA SOURCES, SAMPLE AND VARIABLES DEFINITION

3.1. Data and sample construction

To test our main hypotheses, we use the data on executive directors' characteristics and personal connections collected from BoardEx database, which provides detailed biographical information on directors and top executives of public and private companies as well as not-for-profit organisations around the world. Our sample includes all the UK listed financial firms (banks, insurance, investment companies, life assurance, etc.) and executive directors as per database. In total, the sample comprises 125 unique financial firms and 790 unique executive directors and covers the period 2004-2016[1].

To analyse the personal attributes of boards across companies of different sizes (market capitalisation), firms are clustered by major UK market indices, FTSE 100, FTSE 250, FTSE SmallCap, and AIM firms. The FTSE 100 index comprises the 100 most highly capitalised blue-chip companies, representing approximately 81% of the UK market. The FTSE 250 index includes mid-capitalised companies not covered by the FTSE 100 and represents approximately 15% of UK market capitalisation. The FTSE SmallCap consists of companies outside of the FTSE 350 Index and represents approximately 2% of UK market capitalisation. AIM (Alternative Investment Market) is a sub-market of the London Stock Exchange, allowing smaller companies to float shares with a more flexible regulatory system than is applicable to the main market.

Thus, for each year, we control for the number of firms and index composition and account for the firms that have left, entered, or changed the index cluster (no survivorship bias). Table 1 provides a summary of the firms present in each index cluster (as the number of firms does not vary significantly across years, the table displays the total number of firms in each cluster for every four years). Table 2 shows the number of unique directors in each cluster and for every year.

3.2. Indices and executive compensation

One recent strand of academic literature states that firms are more likely to benchmark against peers when determining executive pay (Bizjak, Lemmon, & Naveen, 2008; Faulkender & Yang, 2010; Albuquerque, De Franco, & Verdi, 2013). The peers are usually the firms of a similar size, profitability, and business complexity. Thus, for instance, Bizjak, Lemmon, and Nguyen, (2011) explain that firms in the S&P 500 are more likely to choose other S&P 500 firms as peers. Further, Gabaix and Landier (2008) claim that the increase in executive pay can be fully attributed to the increase in market capitalisation.

Based on the evidence 1) that executive pay of top managers is benchmarked against peers and differentiate by firm market capitalisation, 2) that the determinants of board structure differ between small and large firms (Linck, Netter, & Yang, 2008) and 3) the evidence of a complementary relation between pay for top executive credentials and firm size (Falato & Milbourn, 2015), we claim that the difference in executive pay and the top paid manager characteristics should be clearly seen when analysed in respect to market index peer groups such as FTSE 100, FTSE 250, FTSE SmallCap and AIM firms. Market index clustering will allow controlling for complete remuneration packages, including extra perks associated with the executive rank and gives the opportunity to analyse manager characteristics important for career growth (from AIM towards FTSE 100): the personal traits that differentiate executive directors across different company hierarchies.

To confirm the above, we analyse remuneration of executive boards with respect to the four aforementioned market index categories. Figure 1 shows the average firm compensation/remuneration in each index cluster (salaries + bonus) across the years. One can observe that the executive directors' pay varies significantly depending on peer categories. Thus, FTSE 100 firms pay higher average salary/bonus than FTSE 250 counterparts. The same applies to FTSE 250 pay in comparison to FTSE SmallCap and stands for the latter in comparison to AIM firms. Figure 2 reports the average firm executive directors' total wealth estimated as a sum of the value of cumulative holdings over time of stock, options (value of total shares held + estimated market value of options held) and the value of LTIP (long term incentive plan) held by the executive directors across the years. It clearly confirms that the executive compensation across index clusters significantly varies. The highest difference in executive wealth is pronounced for FTSE 100 and FTSE 250 firms.

[1] The sample is composed of 125 financial firm as we upgrade the database in a year basis since 2003, both for the numbers of firms (IPOs, Delisting, etc.) and indices. For instance, we control and upgrade the database if firms move from FTSE SmallCap to FTSE 250.

Table 1. Financial firms

Sample/Firms Financials	*2016*	*2012*	*2008*	*2004*	*Unique firms*
FTSE 100	10	10	10	9	10
FTSE 250	24	26	25	22	27
FTSE SmallCap	16	15	12	9	17
AIM market	50	64	64	26	71
Total	100	115	111	66	125

Table 2. Executive directors

Year / *Index*	*Unique directors*	*2016*	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*2004*
FTSE 100	98	30	29	35	35	33	36	38	41	39	41	39	42	45
FTSE 250	178	59	46	71	71	85	93	81	83	92	98	96	91	93
FTSE SmallCap	92	39	25	40	41	40	42	44	42	41	41	41	39	37
AIM	422	138	100	174	181	182	197	193	178	195	206	159	153	104
Total	790	266	200	320	328	340	368	356	344	367	386	335	325	279

Figure 1. Executive annual compensation (salary + bonus)

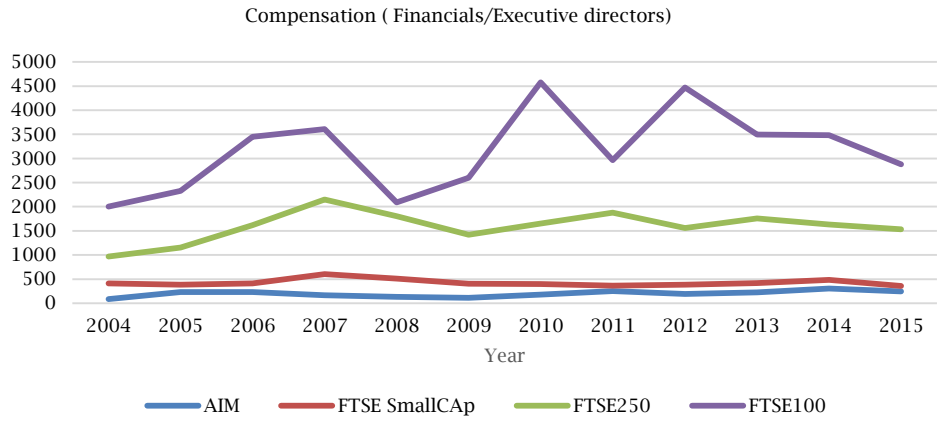
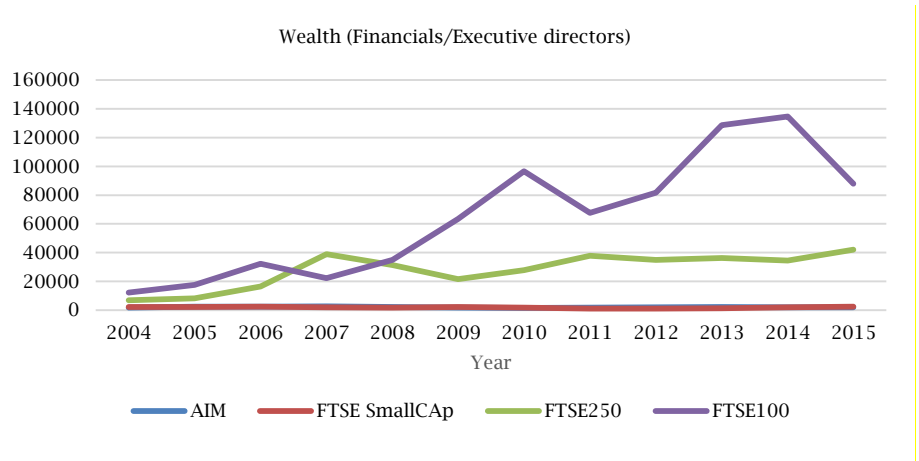


Figure 2. Executive annual total wealth



We claim that the difference in executive compensation should be attributed to those most valued according to their employer managerial traits. Recent research (Engelberg, Gao, & Parsons, 2013; Crespí-Cladera & Pascual-Fuster, 2015) show that larger compensations of executive managers are linked to higher network activity. In this paper, we are determined to extend the previous work and aim to identify additional personal characteristics that differentiate managers across firms of different market cap and specify the most important traits for career progression (from AIM firms towards FTSE 100).

3.3. Variables definition and descriptive statistics

To test our main hypotheses and control for the difference in managerial attributes in each index group, we utilise five variables:

1. Variable "*Network*" is constructed based on

Network size information provided by BoardEx and represents the number of director connections (number of overlaps through employment, education, and other activities (i.e. connections through clubs, memberships, non-profit activities, etc.).

2. Variable "*Education*", represents the number of qualifications held by the director. We account for all qualifications of degree level, academic, and professional in equivalence.

3. Variable "*Age*"; is presented in years and expected to show a linear relation between the age of executive directors and their hierarchical position as per index cluster.

4. Variable "*Nationality*"; measures nationality diversity amongst executive directors in each index cluster and is estimated with a Herfindahl nationality diversity index (board diversity index). It is calculated as follows:

$$(Percentage\ British\ (ED)\ per\ firm, year)^2 + (1 - Percentage\ British\ (ED) per\ firm, year)^2 \quad (1)$$

A lower value of the nationality diversity index will indicate more diversity in boards.

5. Variable "*Gender*"; similar to the above, gauges gender diversity amongst executive directors in boards of AIM, FTSE SmallCap, FTSE 250, and FTSE 100 companies. The variable is estimated with Herfindahl Gender Diversity index and is calculated as follows:

$$(Percentage\ Male\ (ED)\ per\ firm, year)^2 + (1 - Percentage\ Male\ (ED) per\ firm, year)^2 \quad (2)$$

A lower value of gender diversity index will hence represent higher gender diversity in boards.

Table 3, Panel A-D, shows the descriptive statistics for the personal attributes of executive directors across indices clusters (FTSE 100, FTSE 250, FTSE SmallCap, and AIM) on a year by year basis. Clearly, one can note two stable trends that persist across all four panels. The number of network connections and executive age increased up until 2016 within each index cluster. Interestingly, the requirement for education seems to have become more important for FTSE SmallCap and AIM firms. However, a slight inverse trend can be observed for FTSE 100 companies.

In accordance with our assumptions, we observe a difference in managerial traits across index groups. Thus, the average (mean) levels of managerial characteristics across index clusters over the sample period show the importance of Network size for executive directors in FTSE 100 and FTSE 250 firms. Thus, the network connection of FTSE 100 board members is almost twice the network size of FTSE 250 directors (1,649 versus 836) and about 3 times higher versus FTSE SmallCap and AIM firms (450 and 573, respectively).

Education is the second most important factor which significantly differentiates executive directors across index clusters. The mean figures show that the requirement for education increases while directors progress from AIM towards FTSE 100 firms. So, on average, executive directors hold 2.16 degrees when in FTSE 100, 1.59 in FTSE 250, and 1.21 and 1.08 in FTSE SmallCap and AIM respectively. "*Age*" for the existing board is relatively constant across the index clusters. The average age of an executive director in FTSE 100 and FTSE 250 firms is 52 years old.

The variables Nationality and Gender have estimated with the Herfindahl index indicate low diversity in UK Boardrooms, with 0.86 and 0.95 on average across all index groups respectively. Looking at the sample in more detail we can highlight that women represent only close to 6 percent of the board, with the highest percentage observed in FTSE 100 firms and the lowest in FTSE SmallCap (6.3 versus 5 percent correspondingly).

A similar tendency can be seen for diversity according to Nationality. Hence, non-British executive directors retain just above 16.5 percent of the board. FTSE 100 firms are the most internationally diverse (28.5 percent of non-British) while FTSE SmallCap firms' figures are just above 10.5 percent.

By and large, we can state that based on the average personal attributes of executive directors across all index clusters a 'typical' profile of an executive director on the board of a UK financial firm during the time period analysed is a 52-year-old British male with more than one-degree level qualification (1.5) and with an extensive network of director connections (877 on average).

Table 3. Summary statistics (per year) (Part 1)

Variables	*All years average values*	*2016*	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*2004*
Panel A: FTSE 100														
Network	1,649	1,654	1,617	1,606	1,859	1,759	1,653	1,759	1,675	1,664	1,663	1,744	1,555	1,465
Age	51.6	53.0	52.9	52.4	52.5	51.6	51.7	52.4	51.7	51.4	50.9	50.2	50.9	49.8
Education	2.16	1.86	1.95	1.93	2.10	1.98	2.00	2.10	2.20	2.22	2.37	2.56	2.57	2.44
Nationality	0.78	0.77	0.75	0.83	0.82	0.81	0.78	0.75	0.79	0.69	0.74	0.76	0.79	0.80
Gender	0.93	1.00	0.97	0.93	0.93	0.92	0.93	0.92	0.92	0.97	0.92	0.91	0.91	0.97
No. of firms	10	10	9	10	10	10	10	10	10	10	10	9	9	9
Panel B: FTSE 250														
Network	836	946	954	929	890	806	808	878	845	841	848	635	584	523
Age	51.2	55.1	54.2	53.3	52.3	51.5	51.3	50.7	50.1	50.0	50.1	50.0	50.1	49.3
Education	1.59	1.53	1.60	1.54	1.68	1.63	1.71	1.67	1.67	1.67	1.54	1.47	1.54	1.60
Nationality	0.85	0.91	0.88	0.87	0.87	0.80	0.84	0.85	0.82	0.81	0.85	0.82	0.87	0.86
Gender	0.94	0.98	0.98	0.96	0.97	0.95	0.95	0.94	0.92	0.89	0.92	0.93	0.92	0.92
No. of firms	27	23	18	24	26	26	26	26	25	25	24	23	22	22

Table 3. Summary statistics (per year) (Part 2)

Variables	*All years average values*	*2016*	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*2004*
Panel C: FTSE SmallCap														
Network	450	646	499	632	555	534	501	510	365	403	442	435	238	216
Age	53.9	56.1	55.7	54.5	54.5	53.8	52.8	53.6	52.5	52.2	51.9	51.1	51.5	51.6
Education	1.21	1.27	1.24	1.27	1.15	1.21	1.22	1.28	1.08	1.08	1.19	1.13	1.23	0.98
Nationality	0.92	0.89	0.91	0.85	0.91	0.92	0.92	0.89	0.92	0.93	0.97	0.97	0.97	0.96
Gender	0.97	0.95	0.96	0.98	0.98	0.98	0.98	0.98	0.98	1.00	0.96	0.96	0.95	1.00
No. of firms	17	16	9	15	15	15	15	15	14	12	12	12	11	9
Panel D: AIM														
Network	573	616	694	661	621	618	582	581	517	547	516	478	389	333
Age	50.5	53.3	52.4	51.7	52.1	51.3	50.3	49.9	49.8	49.0	49.2	48.7	48.1	48.7
Education	1.08	1.21	1.11	1.16	1.17	1.10	1.10	1.08	1.17	1.14	1.15	1.07	1.03	1.05
Nationality	0.89	0.90	0.90	0.90	0.89	0.87	0.87	0.88	0.88	0.88	0.87	0.88	0.90	0.91
Gender	0.95	0.96	0.96	0.97	0.97	0.95	0.95	0.93	0.92	0.93	0.93	0.95	0.96	0.94
No. of firms	71	48	29	55	60	64	68	66	63	64	60	48	37	26

3.4. Difference in means rank test

To assess whether the differences in managerial attributes across index clusters are statistically significant, we perform the Wilcoxon rank-sum (Mann-Whitney) test, year by year, and for all years. We maintain a null hypothesis that the average values of manager attributes in two independent samples (in this case firms in two different indices) are the same against an alternative hypothesis that a particular population tends to have larger/smaller values than the other. Table 4, Panel A shows that FTSE 100 managers have a statistically significant larger number of network connections, degree qualifications, and more internationally diverse in comparison to FTSE 250 firms average (statistically significant at 1 percent level).

This difference gets even stronger when analysed versus FTSE SmallCap and AIM firms. There is an interesting and distinctive difference in age, nationality, and gender when all index clusters are compared to FTSE SmallCap. Their executive directors are, on average, older and the boards are less nationality and gender diverse (statistically significant at 1 and 5 percent level). Overall, we can state a distinctive difference among mean executive attributes across index groups. When the results are analysed on a year by year basis, the observed pattern persists with some statistical significance and for network and education, in particular.

Table 4. Wilcoxon rank-sum test

	Network	*Age*	*Education*	*Nationality*	*Gender*
Panel A: All years					
FTSE 100 – FTSE 250	-9.416***	-2.018**	-7.112***	3.153***	0.124
FTSE 100 – FTSE SmallCap	-11.371**	2.160**	-10.301***	6.149***	2.511**
FTSE 100 – AIM	-13.241***	-3.886***	-12.514***	5.761***	0.968
FTSE 250 – FTSE SmallCap	-7.672***	4.161***	-4.984***	3.808***	2.737***
FTSE 250 – AIM	-10.159***	-2.723***	-8.823***	2.709***	1.211
FTSE SmallCap – AIM	0.639	-6.147***	-2.117**	-2.035**	-2.114**
Panel A: 2004					
FTSE 100 – FTSE 250	-3.046***	-0.109	-2.492**	0.803	-0.789
FTSE 100 – FTSE SmallCap	-3.400***	0.751	-2.753***	2.066**	1.000
FTSE 100 – AIM	-3.737***	-0.868	-3.252***	1.904*	-0.372
FTSE 250 – FTSE SmallCap	-2.307***	0.871	-2.389**	1.275	1.529
FTSE 250 – AIM	-2.504***	-0.755	-2.665***	0.885	0.562
FTSE SmallCap – AIM	0.075	-1.019	0.076	-0.661	-1.230
Panel A: 2008					
FTSE 100 – FTSE 250	-2.921***	-1.407	-1.968**	0.982	-1.217
FTSE 100 – FTSE SmallCap	-3.429***	0.198	-3.408***	2.636***	1.095
FTSE 100 – AIM	-3.921***	-1.779*	-3.707***	2.592	-0.641
FTSE 250 – FTSE SmallCap	-2.482**	1.250	-2.087**	1.600	1.995**
FTSE 250 – AIM	-2.976***	-1.046	-2.697***	1.416	1.178
FTSE SmallCap – AIM	0.456	-1.824**	0.122	-0.847	-1.537
Panel A: 2012					
FTSE 100 – FTSE 250	-2.826***	-0.513	-1.426	0.117	0.381
FTSE 100 – FTSE SmallCap	-2.884***	1.138	-2.532**	1.231	0.982
FTSE 100 – AIM	-3.621***	-0.965	-3.244	0.850	0.559
FTSE 250 – FTSE SmallCap	-2.192**	1.489	-1.298	1.697*	0.762
FTSE 250 – AIM	-3.205***	-0.352	-2.555**	1.211	0.271
FTSE SmallCap – AIM	0.019	-1.938**	-0.624	-0.863	-0.680
Panel A: 2016					
FTSE 100 – FTSE 250	-2.003**	0.490	-1.411	1.693*	-0.645
FTSE 100 – FTSE SmallCap	-2.530**	1.425	-2.057**	1.308	-1.141
FTSE 100 – AIM	-3.392***	-0.247	-2.591	1.779*	-0.917
FTSE 250 – FTSE SmallCap	-1.574	0.757	-0.628	-0.303	-0.968
FTSE 250 – AIM	-2.714***	-1.143	-1.608	-0.041	-0.637
FTSE SmallCap – AIM	-0.344	-2.017**	-1.011	0.315	0.480

Note: Wilcoxon rank-sum (Mann–Whitney) test is applied to assess whether the differences in managerial attributes across index clusters are statistically significant. The analysis is performed on a year by year basis and for all years (as the outcomes do not vary significantly across the years, the table displays the significance for the managerial characteristics in each cluster for every four years). Superscripts indicate statistical significance at 0.01 (*), 0.05 (**) and 0.10 (***) percent levels.

4. MODEL AND EMPIRICAL RESULTS

4.1. Ordered Probit Model

Our main question is to analyse whether some managers' attributes may increase their probability of moving towards upper echelon boards, to identify the characteristics that are the most valued by the employers and, as discussed previously, lead to higher executive pay. To conduct this empirical analysis, we utilise an ordered probit model (Ordered outcomes). This approach not only allows explicitly for the discreteness of possible index group transitions, but also for the fact that index groups possess a natural ordering from the largest to the smallest by market capitalisation firms. This model relates the index clusters (the latent variable) to observed explanatory variables through an unobserved continuous linking variable. The index categories map on to a partition of the range of the unobserved variable, which is in turn a linear function of the observed explanatory variable.

Hypothesis 6 (H6): The certain personal characteristics increase the probability of executive directors moving upwards (from AIM to FTSE 100).

The underlying relationship can be described as follows:

$$Index\ category^* = x_T\beta + \varepsilon \quad (3)$$

where the dependent variable *Index category** is the exact but unobserved variable, which represents ordered outcomes, index clusters (FTSE 100, FTSE 250, FTSE SmallCap, and AIM): rank 4 is assigned for executives of FTSE 100 firms; rank 3 for the executives of FTSE 250; rank 2 and rank 1 is for directors in FTSE SmallCap and AIM firms, respectively. Here, x is the vector of independent variables comprising of cross-sectional data for firms and time-series data, such as director attributes is the vector of regression parameters to be estimated, while $\boldsymbol{\varepsilon}$ is a disturbance term that has a standard normal distribution.

Since we cannot directly observe *Index category**, we observe the categories of response using the following equation:

$$Index\ category = \begin{cases} 4\ if\ FTSE100 \in [\mu_3, \infty), \\ 3\ if\ FTSE250 \in [\mu_2, \mu_3), \\ 2\ if\ FTSE\ Small\ cap \in [\mu_1, \mu_2), \\ 1\ if\ AIM \in (-\infty, \mu_1), \end{cases} \quad (4)$$

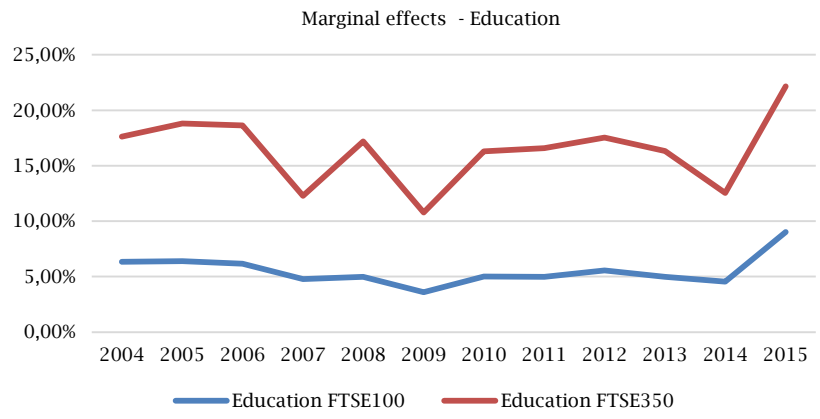
Here, the $\mu_i's$ are unknown parameters which define a series of ranges collectively into which the latent variable may fall (partition points). Like the β, the $\mu_i's$ are to be estimated.

The ordered probit model is hence applied to determine the probability of executive directors to be a part/belong to boards in different index clusters due to their personal attributes.

Table 5 presents the outcomes. The evidence supports our previous findings and confirms that network and education are the most important attributes for career progression (also associates with executive pay as per Figure 1). The results are displayed per year and by the average for all years (first column). The partition points are presented in the bottom half of the table. As it can be seen the results for education and network connections are robust and statistically significant across years.

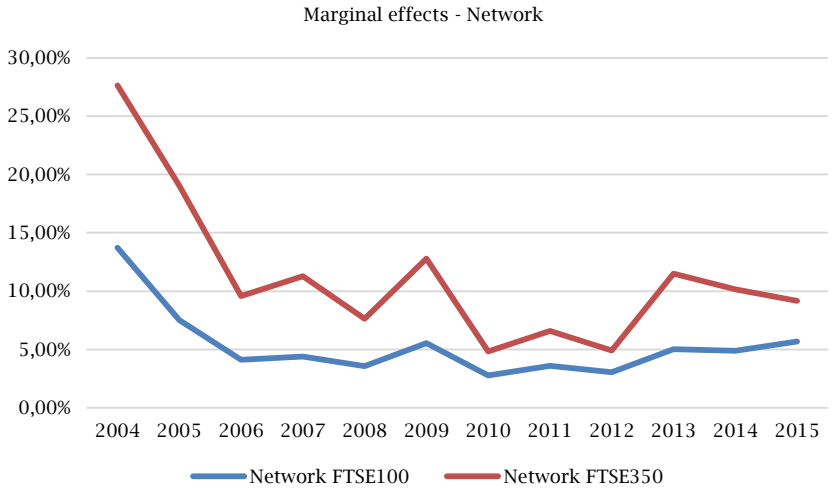
Figures 3 and 4 below show the marginal effect of education and network on the probability of career development from the AIM market towards FTSE 350 firms and further up to FTSE 100 boards. One can observe that with each above-average educational degree, the likelihood of being employed by FTSE 350 firms increases by around 20 percent. Moreover, it improves the chances of becoming a member of the FTSE 100 board by 5-10 percent, depending on the years. To continue, an increase of 100 network connections raises the probability of being hired by FTSE 350 by about 10 percent and the likelihood to join the board of FTSE 100 by 5 percent.

Figure 3. Marginal effects of education: FTSE 100 and FTSE 350



Note: The figure shows the marginal effect of education on the probability of career development from the FTSE SmallCap and AIM market towards FTSE 350 firms and further up to FTSE 100 boards.

Figure 4. Marginal effects of the network: FTSE 100 and FTSE 350



Note: The figure shows the marginal effect of the network on the probability of career development from the FTSE SmallCap and AIM market towards FTSE 350 firms and further up to FTSE 100 boards.

4.2. New entries and exits

We claim that the impact of personal characteristics on hiring decisions and career progression from AIM to FTSE 100 firms should be even stronger when the traits of only new directors are analysed. At first, we wish to see whether the personal attributes of newly appointed are different in comparison to the ones who left. Thus, we would expect to see similar or even stronger evidence of the importance of personal attributes, such as network and education, on career progression.

Hypothesis 7 (H7): The personal attributes of directors entering and leaving the boards in companies of different size are different.

Table 6 outlays summary statistics describing the number of executive managers' entries and exits per each index group (FTSE 100, FTSE 250, FTSE SmallCap, and AIM). The information is comprised of total and year per year data. For the whole time period, we analyse the personal attributes of 474 newly appointed directors and the characteristics of 523 directors who left the board (32 of them were in retirement age). Overall, these figures represent 60% and 66.20% of our sample, respectively. As can be seen, the highest fraction of newly appointees is centred in the AIM category, 287 executive directors.

Table 7 Panel A-D describes the summary statistics of executive directors' personal traits in each index category. As can be noticed, the average characteristics of the new entries differ from the total sample. A 'typical' new director is younger, on average a 48-year-old, and much better connected (1,058 network links versus 877 previously indicated). New executive directors bring more heterogeneity into UK boardrooms and, on average, are more gender and nationality diverse.

By and large, we can state that personal attributes of new directors employed by FTSE 100 stand out from the rest of the index categories. Their new appointees are older, the most connected, have close to two degrees on average, and have a more diverse ethnic background. The female representation on the board is above FTSE SmallCap and AIM and almost at the level of FTSE 250.

One may also notice here that diversity pattern for executive directors of FTSE SmallCap firms seems slightly different versus other clusters and shows the lowest values of the board diversity index - 0.81 for nationality and 0.95 for gender diversity. Thus, for the whole time period from 2004 to 2016, only 4 non-British members over 40 years of age in total were hired (10 percent) and only 1 was female (2.56 percent).

Table 5. Ordered Probit Model

Variables	*All years*	*2016*	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*2004*
Network	0.0034* (1.95)	0.0045*** (3.00)	0.0033* (1.94)	0.0037** (2.53)	00045*** (3.18)	0.0026* (1.92)	0.0032** (2.07)	0.0025* (1.69)	0.0048*** (2.88)	0.0035* (1.94)	0.0037** (2.26)	0.0040** (2.20)	0.0068*** (2.73)	0.0099*** (3.05)
Age	0.0300 (1.41)	0.0233 (1.16)	0.0264 (1.12)	0.0318* (1.65)	0.0289 (1.49)	0.01145 (0.59)	0.0306 (1.48)	0.0275 (1.36)	0.02245 (1.09)	0.02958 (1.46)	0.03216 (1.54)	0.0444* (1.92)	0.0407* (1.68)	0.0100 (0.38)
Education	0.589*** (3.44)	0.2081 (1.40)	0.5279*** (2.73)	0.3413** (2.15)	0.4519*** (3.01)	0.4665*** (3.10)	0.4501*** (3.18)	0.4490*** (3.06)	0.3121*** (2.19)	0.4842*** (2.93)	0.4004** (2.56)	0.6055*** (3.57)	0.5753*** (3.17)	0.4576** (2.44)
Nationality	-0.654 (-0.99)	-0.6248 (-1.02)	-1.1731 (-1.63)	-0.6024 (-1.05)	-0.6029 (-1.07)	-0.7427 (-1.42)	-0.3949 (-0.72)	-0.5410 (-1.01)	-0.4889 (-0.86)	-1.1216** (-1.99)	-0.5164 (-0.88)	-0.6059 (-0.96)	0.1224 (0.17)	-0.3176 (-0.39)
Gender	-0.748 (-0.69)	0.5794 (0.45)	0.7605 (0.54)	-1.1618 (-1.15)	-1.0337 (-1.04)	-0.1017 (-0.12)	-0.5027 (-0.58)	-0.2011 (-0.26)	0.2457 (0.32)	0.1792 (0.23)	-0.1786 (-0.23)	-0.7490 (-0.84)	-0.5954 (-0.63)	0.0508 (0.05)
No. of firms	125	97	65	104	111	115	119	117	112	111	106	92	79	66
Pseudo R^2	0.112	0.0718	0.1096	0.0780	0.1052	0.0812	0.0921	0.0960	0.0956	0.1240	0.1022	0.1456	0.1713	0.1749
FTSE SmallCap	1.4191	1.8937	1.9535	0.8464	1.0519	0.8052	1.7566	1.6855	1.8368	1.772	1.9492	2.0441	2.5625	0.9982
FTSE 250	1.8439	2.3601	2.3612	1.2641	1.4573	1.1925	2.1403	2.0751	2.2123	2.1119	2.2886	2.4424	2.9956	1.4161
FTSE 100	2.9339	3.3371	3.4341	2.2551	2.5703	2.2193	3.1671	3.1104	3.2638	3.2291	3.345	3.6814	4.3226	2.8830

Note: The table presents the outcomes of the ordered probit model. The model is applied to determine the probability of executive directors to be a part/belong to boards in different index clusters due to their personal attributes. The analysis is performed on a year by year basis and for all years. Superscripts indicate statistical significance at 0.01 (*), 0.05 (**) and 0.10 (***) percent levels; t-statistics are reported in parenthesis.

Table 6. Number of entries and exits per year

Variables	*Total entries*	*2016*	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*2004*
FTSE 100	56	4	0	5	7	4	4	2	3	6	4	5	5	7
FTSE 250	91	2	0	4	6	7	10	9	3	10	8	15	4	13
FTSE SmallCap	40	2	0	4	4	4	4	1	5	3	1	6	4	2
AIM	287	10	4	17	24	17	32	27	10	28	41	43	25	9
Total entries	474	18	4	30	41	32	50	39	21	47	54	69	38	31
Entries/Total	60.00%	9.00%	1.25%	9.15%	12.06%	8.70%	14.04%	11.34%	5.72%	12.18%	16.12%	20.60%	13.62%	13.60%
Variables	***Total exits***	***2016***	***2015***	***2014***	***2013***	***2012***	***2011***	***2010***	***2009***	***2008***	***2007***	***2006***	***2005***	***2004***
FTSE 100	72	2	3	6	5	5	8	3	4	9	4	8	8	7
FTSE 250	134	4	4	6	20	13	5	11	14	17	10	11	7	12
FTSE SmallCap	48	1	1	5	3	3	8	3	9	5	1	2	5	2
AIM	269	7	2	15	37	19	31	36	22	33	20	32	8	7
Total exits	523	14	10	32	65	40	52	53	49	64	35	53	28	28
Exits/Total	66.20%	7.00%	3.13%	9.76%	19.12%	10.87%	14.61%	15.41%	13.35%	16.58%	10.45%	16.30%	10.03%	12.28%

Note: The table outlays summary statistics describing the number of executive managers' entries and exits per each index group (FTSE 100, FTSE 250, FTSE SmallCap, and AIM). The information is comprised of total and year per year data.

Table 7. Average attributes of executive directors (new entries)

Variables	*ALL years*	*2016*	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*2004*
Panel A: Average director FTSE 100														
Network	1,777	2,432	-	1,306	2,296	1,986	1,355	1,834	2,078	1,751	2,600	1,705	718	1.556
Age	49.5	50.5	-	49.2	52.3	50.5	44.8	49.5	50.7	50.7	50.3	47.8	52	45.9
Education	1.89	1.75	-	1.20	2.14	1.75	2.25	2.5	1.67	1.83	1.00	2.40	2.60	1.71
Nationality	0.54	0.38	-	1.00	0.55	0.63	0.63	0.50	0.56	0.50	1.00	0.44	0.44	0.76
Gender	0.86	1.00	-	1.00	1.00	1.00	0.63	1.00	1.00	1.00	1.00	1.00	0.44	0.76
No. of managers	56	4	0	5	7	4	4	2	3	6	4	5	5	7
Panel B: Average director FTSE 250														
Network	1,050	3,954	-	2,022	701	367	1,023.	1,022	927	1,566	1,759	810	1,346	254
Age	46.8	52.0	-	48.5	51.2	44.1	47.0	49.3	48.7	46.0	45.0	46.1	47.5	45.0
Education	1.60	1.00	-	1.50	1.33	0.57	2.30	2.00	0.67	2.00	1.75	1.47	1.5	1.62
Nationality	0.59	1.00	-	1.00	0.50	0.55	0.40	0.63	0.56	0.52	1.00	0.56	1.00	0.61
Gender	0.85	1.00	-	1.00	0.72	1.00	1.00	1.00	1.00	0.52	0.78	1.0	0.63	0.86
No. of managers	91	2	0	4	6	7	10	9	3	10	8	15	4	13
Panel C: Average director FTSE SmallCap														
Network	872	31	-	1,251	985	1,490	1,498	3,455	188	59	923	1,044	427	230
Age	48.4	48	-	51.8	45.5	53.0	44.5	46.0	49.4	52.3	51.0	49.5	40.8	49.0
Education	1.10	1.00	-	1.50	0.75	1.00	1.00	3.00	0.80	1.00	3.00	1.33	1.00	0.00
Nationality	0.81	1.00	-	0.38	0.63	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Gender	0.95	0.50	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
No. of managers	40	2	0	4	4	4	4	1	5	3	1	6	4	2
Panel D: Average director AIM														
Network	534	773	104	583	502	474	604	360	167	539	517	601	670	613
Age	46.3	49.7	50.8	47.6	50.0	48.0	47.9	46.1	43.9	43.5	46.4	45.6	43.8	42.3
Education	1.15	1.30	0.25	0.94	1.71	1.06	1.13	1.07	1.00	1.21	1.00	1.21	0.92	1.67
Nationality	0.77	0.66	1.00	0.69	0.80	0.89	0.72	0.67	0.82	0.80	0.73	0.82	0.85	1.00
Gender	0.89	0.66	1.00	1.00	1.00	0.89	1.00	1.00	0.82	0.86	0.77	0.87	1.00	0.80
No. of managers	287	10	4	17	24	17	32	27	10	28	41	43	25	9

Note: The table, Panel A-D describes the summary statistics of executive directors' personal traits (new entries) in each index category.

To investigate whether the personal attributes of directors entering and leaving the boards of FTSE 100, FTSE 250, FTSE SmallCap, and AIM are different, we perform a Wilcoxon rank-sum test. We thus apply a null hypothesis that average director attributes for those entering and leaving per each index cluster are the same, with an alternative hypothesis that there are manager traits that differentiate new arrivals across all market index categories. The results for all the years are displayed in Table 8.

Table 8. Wilcoxon rank-sum test (entries/exits)

	Network	***Age***	***Education***	***Nationality***	***Gender***
FTSE 100	-0.569	3.992***	1.558	-0.124	0.304
FTSE 250	-2.416***	5.992***	0.806	0.121	0.352
FTSE SmallCap	-1.794*	2.257**	-0.598	0.269	1.095
AIM	-0.820	3.378***	-0.078	-0.034	-0.044

Note: Wilcoxon rank-sum test is conducted to investigate whether the personal attributes of directors entering and leaving the boards of FTSE 100, FTSE 250, FTSE SmallCap, and AIM are different. Superscripts indicate statistical significance at 0.01 (*), 0.05 (**) and 0.10 (***) percent levels.

The outcomes show that the factor which differentiates new entries and exits is age (statistically significant at 1 percent level for all indices). In addition, new directors in FTSE 250 and FTSE SmallCap are better connected in comparison to the ones who left. The results for other variables, such as education, nationality, and gender, are not statistically significant, entailing that the rest of the attributes of those who came in are not different from the directors who have moved out.

For further clarification on personal traits, we apply the Ordered Probit Model only for newly appointed directors. As per section 3.1 of this paper, we assign rank 4 for new executives of FTSE 100 firms, rank 3 for those recruited by FTSE 250, rank 2 and rank 1 for FTSE SmallCap and AIM's new entries, respectively.

Table 9 lays out the results. As we may note, there are four main characteristics that increase the probability of new managers moving upwards (from AIM to FTSE 100): network, age, education, and nationality (statistically significant at 1 and 5 percent level). These results are in line with our previous findings and confirm that new FTSE 100 members are older, most qualified, more nationality diverse and have the highest number of network connections.

Table 9. Ordered Probit Model (entries)

Variables	
Network	0.0037*** (6.89)
Age	0.0222*** (2.69)
Education	0.1217** (2.22)
Nationality	-0.3517** (-2.31)
Gender	-0.1580 (-0.64)
No.of managers Pseudo R^2	474 0.1091
FTSE SmallCap FTSE 250 FTSE 100	1.3917 1.6605 2.4870

Note: Ordered Probit Model is performed only for newly appointed directors. The model is applied to identify the most valued personal attributes that drive career progression (also corresponds to remuneration packages). Superscripts indicate statistical significance at 0.01 (*), 0.05 (**) and 0.10 (***) percent levels; t-statistics are reported in parenthesis.

4.3. New entries and existing board

Previous academic studies have suggested a possible bias in the appointment of new directors. For instance, Cohen, Frazzini, and Malloy (2012) provide evidence that firms appoint independent directors who are overly sympathetic to management. The findings of Shivdasani and Yermack (1999) indicate that the CEO's attempt to bias new board appointments in their favour. In addition to this empirical evidence, we examine in our paper whether the personal characteristics of the newly appointed executive directors are similar to the existing board or, in fact, the skill set of the new members is different. To perform this analysis, we construct a matching sample that includes only the firms with newly appointed directors and compares those to the rest of the board. Our matching sample includes the data on 474 new directors.

Hypothesis 8 (H8): The personal traits of the new entries are different from the existing board.

Similar to Table 8, to control for the differences in personal characteristics of the new and existing board members, we apply Wilcoxon rank-sum test with a null hypothesis that average personal traits of the new entries and the existing board are the same in comparison to an alternative hypothesis that some attributes of the new arrivals are different across all index clusters. The analysis is conducted for all years and Table 10 presents the outcomes, where the average values for new entries in comparison with the average board by attribute are displayed in parenthesis.

The findings confirm our previous statement and show that the personal characteristics of new directors are different from the existing boards. Overall, the new entries are younger, more connected, and more nationality and gender diverse (statistically significant at 1 percent level). In addition to the mean values, we can highlight the finding that FTSE 100 boards, including new entries, have the largest network size, the most nationality and gender diverse and educated (even though the newly appointed have fewer degrees in comparison with the existing board on average). More non-British members are among new arrivals (0.73 in contrast to 0.78 as per Herfindahl index, statistically significant at 5 percent level). Besides being younger, the FTSE 250 new entries have more men amongst the newly appointed; however, the overall gender diversity figures are the lowest versus other groups, 0.923/0.919 statistically significant at 1 percent level.

Table 10. Wilcoxon rank-sum test

	Network	*Age*	*Education*	*Nationality*	*Gender*	*New managers average board observations*
FTSE 100	0.675 (1,776/1,786)	2.082** (49.5/51.1)	1.776* (1.89/2.15)	-2.503** (0.73/0.78)	-1.499 (0.93/0.96)	56
FTSE 250	1.503 (1,050/889)	3.124*** (46.8/49.2)	0.007 (1.60/1.57)	-1.452 (0.76/0.83)	-3.640*** (0.923/0.919)	91
FTSE SmallCap	0.106 (872/566)	2.721*** (48.4/51.1)	-0.392 (1.10/1.06)	-2.265 (0.90/0.89)	-1.331 (0.98/0.98)	40
AIM	4.278*** (534/491)	3.826*** (46.3/48.4)	1.076 (1.15/1.12)	-4.461*** (0.87/0.86)	-4.071*** (0.94/0.95)	287
Overall	3.613*** (808/727)	5.498*** (47.0/49.1)	1.051 (1.31/1.32)	-5.758*** (0.84/0.85)	-5.771*** (0.94/0.95)	474

Note: Wilcoxon rank-sum test is conducted to control for the differences in the personal characteristics of the new and existing board members. The analysis is performed for all years. The average values for new entries in comparison with the average board by attribute are displayed in parenthesis. Superscripts indicate statistical significance at 0.01 (*), 0.05 (**) and 0.10 (***) percent levels.

The AIM new members are the youngers, better connected and diverse (including both female and non-British members) versus the existing board. As stated previously, the results for the FTSE SmallCap cluster are different from the other index categories. The new entries' characteristics do not deviate much from the existing boards, except for being younger.

To complement our analysis, we examine the relationship between the personal characteristics of the board and the personal traits of the newly hired and estimate whether the personal traits of new directors are influenced by the historical board attributes. To conduct this analysis, we run a standard least-square linear regression written below:

$$New\ manager\ attributes_{i,r,t} = \alpha + \beta_i Average\ Board\ Attributes_{i,r,t-1} + \varepsilon_{i,r,t} \quad (5)$$

where i represents index, r the firm and t year. The attributes of newly hired per index cluster, firm, and year are estimated in relation to the board characteristics per index cluster, a firm with a time lag of one year.

This cross-sectional analysis is conducted for the whole time period 2004-2016. Table 11 reports obtained beta coefficients.

Table 11. Attributes of new directors versus the existing board

Average	*All*	*FTSE 100*	*FTSE 250*	*FTSE SmallCap*	*AIM*
NetworkNew	1.0497*** (16.90)	0.8892*** (6.93)	1.2148*** (5.94)	1. 5793*** (8.50)	1. 0649*** (11.37)
AgeNew	0.9386*** (17.48)	0.8817*** (4.97)	0.8522*** (4.95)	0.8515*** (4.16)	0.9543*** (15.36)
EducationNew	1.0056*** (21.00)	0. 7861*** (4.09)	1. 1970*** (10.85)	1. 0447*** (5.12)	1. 0788*** (17.81)
NationalityNew	1.0328*** (17.18)	1.2100*** (5.11)	1.1976*** (9.35)	1.3647*** (3.90)	0.9187*** (12.94)
GenderNew	1.0978*** (6.88)	1.8156*** (2.77)	0.8789*** (2.80)	1.0000 (1.13)	1.1268*** (5.70)

Note: A standard least-square linear regression $New\ manager\ attributes_{i,r,t} = \alpha + \beta_i Average\ Board\ Attributes_{i,r,t-1} + \varepsilon_{i,r,t}$ is applied to estimate the relationship between the personal characteristics of the board and the personal traits of the newly hired, where i represents index, r the firm, and t year. The attributes of newly hired per index cluster, firm, and year are estimated in relation to the board characteristics per index cluster, a firm with a time lag of one year. This cross-sectional analysis is conducted for the whole time period from 2004 to 2016. Superscripts indicate statistical significance at 0.01 (*), 0.05 (**) and 0.10 (***) percent levels.

The results show a positive relationship between all the personal attributes examined of the existing board and the newly appointed directors across all index clusters. Coefficients above one indicate that firms hire managers with better attributes than the board average. For instance, for each average 100 board network connections the new director hired by FTSE 250 has 121 network links (larger network size). However, there are examples when the required personal traits are below the mean figures of the board. For example, we can state that mature/older boards tend to hire new directors who are older; however, as the age of the board goes up the age of the new entries becomes proportionally below the average age of the board members. These findings are robust (statistically significant at 1 percent level) and consistent across all index categories.

Interesting results can be seen for the variables nationality and gender. Thus, keeping in mind that both are measured by the Herfindahl index where the percentage of British and male per firm is the driving force, statistically significant above one figure indicates that less diverse boards tend to employ even more British male members. A slightly better tendency can be observed for gender diversity in FTSE 250 (0.8789) and nationality diversity in AIM firms (0.9187), statistically significant at 1 percent level.

In addition, we can highlight that, on average, better educated and connected boardrooms bring more educated and higher connected new members (1.0056 and 1.0497, correspondingly, significant at 1 percent level). Taking into consideration that the existing board of FTSE 100 is the most connected versus other index groups the fact that the network size of new directors is proportionally below the average board network links is not surprising (0.8892).

As robustness checks, in addition to OLS, we conduct similar tests using Quantile regression

which is more robust to non-normal errors and outliers and provides a richer characterisation of the data (allows considering the impact of a covariate on the entire distribution, not just its conditional mean). The results obtained from the quintile regression are qualitatively similar to the ones estimated with OLS (the results are available upon request).

4.4. Financial crisis

Parker (2017) states that talent pool can change when business addresses various challenges. We believe that during the time of financial turmoil board characteristics may change as successful leadership and decision-making boards may require different sets of personal skills. Thus, we analyse the effect of the financial crisis on UK board attributes and examine whether the set of executive characteristics after the crisis has changed in comparison with the pre-2008 trend.

Hypothesis 9 (H9): The personal attributes of new directors have changed after the financial crisis.

We conduct a similar to Table 11 linear OLS regression where we analyse the relationship between the personal attributes of newly appointed directors and the traits of the existing boards before and after the financial crisis. To assess the impact of the crisis on personal characteristics of new executives, we split the sample into two groups: before the financial crisis (up to 2007 inclusive) and after for the period 2008-2016. Table 12 presents the results (the results from the Quantile regression are qualitatively similar and available upon request).

Table 12. Attributes of new directors versus existing board (pre- and post-financial crisis)

Average	***Panel A: Pre-2008***				
	All	***FTSE 100***	***FTSE 250***	***FTSE SmallCap***	***AIM***
NetworkNew	1.0902*** (8.24)	0.8965* (1.73)	1.3619*** (3.15)	0.9760*** (4.82)	1.08289*** (7.67)
AgeNew	0.8703*** (8.93)	0.5672* (1.80)	0.5919* (1.93)	0.4729 (1.44)	0.96728*** (8.87)
EducationNew	0.8885*** (11.58)	0.5509* (2.00)	1.1830*** (5.75)	1.3217*** (3.18)	0.9798*** (10.72)
NationalityNew	1.0031*** (6.38)	1.1486* (1.81)	0.8961*** (2.61)	-	1.0231*** (5.38)
GenderNew	1.2947*** (4.62)	2.1176*** (2.69)	1.104133* (1.92)	-	1.2155*** (3.53)
No. of observations	192	21	40	13	118
	Panel B: After-2008				
NetworkNew	1.0308*** (15.44)	0.9120*** (6.43)	1.1505*** (4.49)	1.7247*** (8.05)	1.0455*** (8.54)
AgeNew	0.9782*** (14.88)	1.1348*** (5.66)	0.9927*** (5.29)	1.1216*** (3.92)	0.9617***6 (12.59)
EducationNew	1.1031*** (19.94)	1.0671*** (4.47)	1.2187*** (9.71)	0.9521*** (4.10)	1.1528*** (14.26)
NationalityNew	1.0417*** (16.55)	1.2222*** (4.79)	1.3063*** (9.92)	1.4938*** (4.23)	0.8953*** (11.96)
GenderNew	0.9812*** (5.01)	1.1683 (1.08)	0.8069** (2.16)	-	1.0614*** (4.38)

Note: A standard linear OLS regression $New\ manager\ attributes_{i,r,t} = \alpha + \beta_i Average\ Board\ Attributes_{i,r,t-1} + \varepsilon_{i,r,t}$ *is applied to analyse the relationship between the personal attributes of newly appointed directors and the traits of the existing boards before and after the financial crisis. To assess the impact of the crisis on personal characteristics of new executives, the sample is split into two groups: before the financial crisis (up to 2007 inclusive) and after for the period 2008-2016. The attributes of newly hired per index cluster, firm, and year are estimated in relation to the board characteristics per index cluster, a firm with a time lag of one year. Superscripts indicate statistical significance at 0.01 (*), 0.05 (**) and 0.10 (***) percent levels.*

Our findings show that even though the relationship between the existing board characteristics and the attributes of the newly hired are still positive (in some cases less proportional to the average of the board), one can observe a change in the skill-set after 2008. Hence, executive directors appointed after 2008 are on average older and more educated (more degrees) versus the existing board, except the FTSE SmallCap group. After the crisis, the marginal impact of education for those employed by FTSE 100 has doubled.

These results are consistent with Berger, Kick, and Schaeck's (2014) evidence that older and highly educated executive directors reduce the risk of financial institutions. After the crisis FTSE 100, FTSE 250 and AIM boardrooms appear to be more gender diverse (lower Herfindahl index coefficients); however, men executives mostly dominate. Based on the sample figures only 1 woman versus 34 men was hired by FTSE 100 (2.85%), 4 women rather than 47 men were employed by FTSE 250 (7.84%), 1 woman in comparison to 26 men joined the board of FTSE SmallCap (3.7%), and 7 women in contrast to 162 men became a part of AIM boardrooms (4.14%). The highest percentage of women in FTSE 250 and AIM was employed in the year 2008[2]. These results may be explained by the different skill-set required during the time of turmoil and may reflect previous literature on female risk aversion (Carter, Franco & Gine, 2017; Martin, Nishikawa, & Williams, 2009). Based on the nationality diversity figures, one can notice that, excepting the AIM category, boardrooms have become less nationality diverse. This finding means that more British directors have been hired after the financial crisis.

Nevertheless, even though the nationality diversity figures have declined, the percentage of international members on boards is much higher in comparison to the percentages for gender diversity. Thus, after 2008, new other than British directors represent 28.57 percent and 27.45 percent of FTSE 100 and FTSE 250 boards versus 14.81% and 14.20% of FTSE SmallCap and AIM boards, respectively. Thereby, similar to Hahn and Lasfer (2016), we confirm that larger boards are more internationally diverse.

[2] These results are available upon request.

5. CONCLUSION

This study proposes a new approach to examining executive remuneration and manager traits disaggregated by market index peer clusters. It allows us to analyse the personal characteristics of the members of financial institutions' boardrooms in the UK and identify the attributes that drive career progression from the AIM market to FTSE 100. In response to the concerns highlighted in the FRC (2015, 2016), in this work we provide more clarity on the board composition and the executive traits that differentiate top managers across various groups of boards that we cluster by market capitalisation. Our analysis has been performed for 125 unique financial firms and 790 unique executive directors, which we divide into four categories in accordance with the major UK market indices (FTSE 100, FTSE 250, FTSE SmallCap, and AIM firms). The study is conducted for the 2004-2016 time period. To the best of our knowledge, this is the first work that has examined the personal characteristics of the existing boards and newly appointed directors disaggregated by the index cluster they serve. This approach has thus allowed us to look at the traits which differentiate FTSE 100 top managers from the executives of the FTSE SmallCap and AIM market and identify the most important attributes driving hiring decisions. The examination is conducted for deep-level attributes such as network size and education, looking into surface-level diversity features like age, gender, and nationality.

The results show increasing importance of network connections and education on career progression and executive pay. Thus, on average, FTSE 100 executive directors are three times better connected and two times more educated in comparison to FTSE SmallCap and AIM board members. In addition, top echelon firms are more diversified in terms of nationality and gender of new managers (Hahn & Lasfer, 2016), while a higher position is associated with greater age.

The new executive directors tend to be younger and better connected (1058 network links versus 877 connections, on average, for existing boards). We document that four main characteristics, such as network, age, education, and nationality, are important determinants that drive new entries' career growth from AIM to FTSE 100 boards (statistically significant at 1 and 5 percent level). By and large, FTSE 100 new members are older, the most connected, educated, and nationality diverse, while the female representation almost at the level of FTSE 250 and above FTSE SmallCap and AIM. In contrast, FTSE SmallCap new appointees do not deviate much from the existing board, except in being younger, and on average are the least nationality and gender diverse.

Furthermore, we document a change in the new managers' skillset after the financial crisis. The new directors appointed after 2008 are on average older, more educated and gender diverse, with the highest number of women hired during the period of the financial crisis (consistent with the literature on risk aversion, Berger, Kick, & Schaeck, 2014; Carter, Franco, & Gine, 2017). However, it is important to note that, overall, the gender index percentage change is still tiny and male boards mainly dominate.

Our results on nationality diversity are of significant importance for policymakers and regulators. We show that, except in the AIM category, UK boards have become less nationality diverse after the financial crisis; in other words, more British executive directors have been employed. This evidence is consistent with the concern raised in Parker (2017).

Our evidence contributes to the literature on managerial traits and adds to the strand of academic research examining the determinants of executive pay. The proposed novel approach of analysing managerial attributes by splitting them into index categories allows them to identify personal attributes important for career progression and can be applied in further research for remuneration benchmarking. By and large, this study has regulatory and practical implications important for the UK's corporate governance as it provides insights on the UK board composition and managerial traits. We can highlight that even though, age, education, and network are crucially important for a successful member of the board, our study shows that despite FRC UK guidance British top boards are not nationality and gender diverse. Thus, considering the currently changing demographic profile of Britain and the international skill pull set required to compete in the constantly changing market environment, government interference or new policy measures are required to bring more diversity to the British boards.

It is important to note that our analysis has limitations as we only utilise personal characteristics of board members based on the data provided by Boardex. A significant strand of academic literature highlights the importance of culture on firm decisions and performance (Fiordelisi & Ricci, 2014, Frijns, Dodd, & Cimerova, 2016; Belghitar, Mateus, & Moro, 2016; Griffin, Guedhami, Kwok, Li, & Shao, 2017). Hence, we believe, that it would be beneficial to further investigate diversity in corporate boards with the inclusion of culture as an additional variable. In addition, this study could be extended to other countries to assess the extent of board diversity among companies of different hierarchy and the impact of such diversity on firm performance. Our novel approach of using market indices to define managerial peer groups can be used in further research on remuneration benchmarking.

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