



## Firm performance and CEO turnover: The moderating role of CEO attributes

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## **Firm performance and CEO turnover: The moderating role of CEO attributes**

### **Abstract**

#### **Purpose**

This study examines the effects of firm performance on CEO turnover and the moderating role of CEO attributes on the firm performance-CEO turnover relationship.

#### **Design/methodology/approach**

Probit regressions were used to examine the relationship between various CEO attributes and CEO turnover and the moderation effect of firm performance on the CEO attributes-CEO turnover relationship. The sample comprises firms from the FTSE 350 Index covering the period 1999 to 2018.

#### **Findings**

Our results indicate that firm performance negatively and significantly impacts CEO turnover. Further analysis reveals that selected CEO attributes, namely CEO internal experience, CEO network size and CEO age, moderate the relationship between firm performance and CEO turnover. Specifically, CEO internal experience and performance combine to reduce the likelihood of CEO turnover. However, CEO network size and age when combined with firm performance increase the likelihood of CEO turnover.

#### **Practical implications**

Our results imply that boards should pay more attention to CEO attributes in their decisions to hire and fire executive managers as these factors may affect a wide variety of firm outcomes.

#### **Originality/value**

We make key contributions to the CEO turnover and corporate governance literature by providing evidence of key factors other than performance that can affect the CEO dismissal decision. Specifically, our study shows that CEO attributes such as CEO internal experience, CEO networks and CEO age far outweigh the importance of performance as a factor influencing CEO turnover decisions.

**Key words:** CEO attributes, CEO turnover, Firm Performance, Upper Echelon Theory, Resource Dependency Theory

## Introduction

The decision to hire and fire a chief executive officer (CEO) is one of the major decisions made by the board of directors of a company. While prior studies document that poor firm performance drives CEO turnover decisions and that forced turnover yields subsequent improvement in financial performance (Conyon & Florou, 2002; Fiordelisi & Ricci, 2014; Eisfeldt & Rampini, 2008; Evans III, Nagarajan & Schloetzer, 2010), upper echelons theory suggests that specific executive management attributes may explain the CEO turnover. Yet prior empirical efforts examining the antecedents of CEO turnover have focused disproportionately on the firm's internal governance attributes and firm performance (Goyal & Park, 2002; Brickley, 2003; Eisfeldt & Rampini, 2008; Rachpradit et al., 2012; Dimopoulos & Wagner, 2016; Srivastav et al., 2017; Jatana, 2022). Notable contributions in this area, such as Murphy (1999), Brickley (2003), Weisbach (1988), Yermach (1996) and Liu (2014) document that CEO age, experience, board independence and CEO connectedness have an important bearing on CEO turnover.

While the above studies have made significant contributions in addressing the issue of whether board and CEO attributes matter for CEO turnover, it is pertinent to point out that research on this subject appears sporadic and fragmented, with various studies addressing selected pieces of the puzzle. For example, Liu (2014) examined how CEO connection affects CEO turnover, while Murphy (1999), Brickley (2003), Weisbach (1988) and Laux (2008) investigated CEO age, experience, and board independence on CEO turnover separately. In a similar vein, Eisfeldt and Rampini (2008) and Jenter and Kanaan (2015) among others, examined firm performance and CEO turnover. Importantly, research evidence indicates that, where studies have paid attention to CEO turnover from the CEO perspective, the focus has been on the influence of selected CEO attributes on CEO turnover, and the combined effects of firm performance and CEO attributes on CEO turnover have been ignored. While upper echelons

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3 theory suggests that specific characteristics and top management leadership may matter,  
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5 Waldman and Ramirez (2001) contend that simply examining CEO demographic factors such  
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7 as age and experience may not go far enough to provide a holistic explanation of the  
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9 phenomenon. Hambrick and Mason (1984) and Sapienza et al. (2006) reinforce this argument  
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11 and suggest that, without taking into consideration managerial competence and attributes which  
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13 allow managers to draw from their competencies and experiences, any conclusions drawn  
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15 regarding the relation between performance-turnover decisions are incomplete. Yet, as far as  
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17 we are aware, no study has examined the effects of the interaction between firm performance  
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19 and CEO attributes on CEO turnover.  
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24 Building on prior literature, this paper attempts to fill this gap and examines the effects of CEO  
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26 attributes and the moderating role of selected CEO attributes on the performance-turnover  
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28 relationship. Our research questions therefore are: do the CEO's attributes affect the board's  
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30 decision to fire a poorly performing CEO? If that is the case, do the CEO's attributes moderate  
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32 the performance-turnover relationship? Answering these research questions is significant in  
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34 that CEO attributes as strategic resources drive the good strategy formulation of the firm and  
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36 may be an important driver of firm performance. More importantly, Finkelstein (1992: 510)  
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38 points out that "power may emanate from a manager's personality"; hence, specific attributes  
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40 and leadership of top managers may make a difference in a firm's strategy, management and  
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42 operating performance (Hambrick & Mason, 1984). Thus, it is argued that CEOs play an  
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44 important role as their experiences, backgrounds and characteristics may exert a critical  
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46 influence on the firm's ability to process information, and on the strategic decision-making  
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48 necessary for effective performance (Hambrick & Mason, 1984; Herrmann & Datta, 2006;  
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50 Nawaz, 2021). Grounded in the above, we hypothesise that selected CEO attributes such as  
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3 age, internal experience<sup>1</sup> and CEO network may moderate the performance-turnover nexus.  
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5 These three attributes are chosen for the following reasons. First, they are easily identifiable  
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7 and objectively measured. Secondly, these attributes are not conferred on the CEO, but are  
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9 acquired and developed over the years<sup>2</sup>. Lastly, they are not transferable; rather, they are unique  
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11 to the CEO. For instance, you cannot find two potential CEOs with the same age, internal  
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13 experience and the same network size. Hence, they are suitable for the evaluation of CEO  
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15 turnover. To strengthen our results and rule out the impact of a board-disciplining mechanism,  
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17 we conduct further analysis to ascertain if our results may change with boards with a high  
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19 proportion of independent directors.  
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24 We address the above questions by examining a sample of UK firms over the 1999 - 2018  
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26 period. The findings of our study reveal that poor performance is positively associated with  
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28 CEO turnover. We also find that CEO attributes, namely, age, internal experience and CEO  
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30 network, moderate the relationship between performance and CEO turnover. Specifically, we  
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32 find that the CEO's internal experience reduces the incidence of CEO turnover while the CEO  
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34 network size and CEO age accentuate the relationship between performance and CEO turnover.  
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36 To investigate the implications of the corporate governance mechanism (i.e. monitoring  
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38 effectiveness of independent directors), we carry out further analysis involving sample firms  
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40 with more than 50% independent directors. The results reveal that CEO internal experience  
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42 and CEO age results remain the same as the full sample. However, the CEO network size has  
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44 no effect on the performance-turnover relationship.  
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50 Our results indicate that firm performance has a negative and significant impact on CEO  
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52 turnover, thereby confirming the conclusions documented in the existing literature that good  
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54 firm performance reduces CEO turnover. Further analysis reveals that selected CEO attributes,  
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59 <sup>1</sup> CEO internal experience is measured as the number of years a CEO has spent in the company (Brockman et al,  
60 2019).

<sup>2</sup> See also, Wei et al, (2018)

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3 namely CEO internal experience, CEO network size and CEO age, moderate the relationship  
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5 between firm performance and CEO turnover. More specifically, we find that the CEO internal  
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7 experience and performance combined to reduce the likelihood of the CEO being fired. The  
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9 results render some support to the resource dependence theory (RDT), indicating that the  
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11 internal experience of the CEO constitutes a valuable asset to a company. However, we find  
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13 the combined effect of firm performance and CEO network size and CEO age to increase the  
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15 likelihood of CEO turnover. The results suggest that the combined effects of performance and  
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17 CEO network and CEO age (CEO network x ROA; CEO age x ROA) far outweigh the  
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19 importance of performance as a factor influencing CEO turnover decisions. In sum, it may be  
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21 argued that CEO network and age play moderating roles in expanding CEO employment  
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23 opportunities. Lastly, our results also reveal that firms with a high proportion of independent  
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25 directors on the board have an insignificant bearing on the association between CEO network  
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27 and performance-turnover nexus.  
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33 Our paper makes two significant contributions to CEO turnover and corporate governance  
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35 literature. Firstly, we show that the CEO's demographic attributes, particularly, internal  
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37 experience, network size and age are important factors in CEO turnover decisions. Whereas  
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39 previous studies have focused on the direct effect of performance on the CEO turnover  
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41 decision, we extend these studies by interacting various CEO attributes with firm performance  
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43 to explore the channels through which performance may lead to a decision to fire or retain a  
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45 CEO. More specifically, our findings demonstrate that CEO internal experience, and CEO  
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47 network size constitute important resources to bend/turn the CEO dismissal decisions.  
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49 Surprisingly, however, CEO age tends to exacerbate CEO turnover decisions. Regarding the  
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51 interaction between CEO attributes and performance, the finding that CEO age and network  
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53 size positively moderate the link between performance-CEO turnover nexus suggests that the  
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55 effects of these two CEO attributes outweigh the effect of poor performance on CEO dismissal  
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3 decisions. This is contrary to the notion among practitioners that negative performance may be  
4 a key driver of CEO turnover decisions. Thus, our results show that poor performance provides  
5 only a partial explanation of CEO turnover and that selected CEO attributes have stronger  
6 effects namely, CEO internal experience, and CEO network size have stronger effects. More  
7 importantly, our results demonstrate that firms value the CEO's human capital more, especially  
8 when making a replacement decision. In particular, the firm-specific knowledge gained by the  
9 CEO over the years constitutes an important resource for the firm thereby supporting the  
10 resource dependency theory. Secondly, our study adds to the body of knowledge on corporate  
11 governance by investigating the impact of independent directors on CEO turnover decisions,  
12 contributing to the ongoing debate on the effectiveness of independent directors. Our research  
13 sheds light on the implications of independent boards for CEO turnover and supports a  
14 theoretical framework that integrates the upper echelons and resource dependence theories to  
15 explain the relationship between CEO attributes, performance, and CEO turnover.

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17 The rest of this paper is organised as follows: section 2 presents the literature review and  
18 develops hypotheses for the study. Section 3 presents the data and method. Section 4 presents  
19 the analysis of the results, while section 5 concludes the paper.

### 20 21 22 **Literature review and hypothesis development**

23  
24 The board of directors plays a key governance role in any company. Amongst the many  
25 functions of the board, the protection of shareholders and other stakeholders' interests is  
26 paramount. The board functions include monitoring and advising senior managers as well as  
27 hiring and replacing managers who have failed to maximise the shareholders' wealth. It is  
28 therefore expected that, when the firm's managers are not performing as expected, the board  
29 should be able to take actions that may lead to improvement in shareholders' wealth. One of  
30 these actions is the replacement of poorly performing senior executive managers charged with  
31 running the company. Hermalin and Weisbach (1998) provide a framework for making a  
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3 replacement decision. In their framework, the board has a responsibility to monitor executive  
4 management and take actions necessary to enhance the performance and sustainability of the  
5 firm. Jenter and Anderson (2017) note that recent performance provides insight into a CEO's  
6 current ability. Thus, if the board believes that the CEO's tenure is associated with poor  
7 performance, a decision to replace the CEO is made. Prior theoretical and empirical studies  
8 support a negative relationship between firm performance and CEO turnover. For example,  
9 Coughlan and Schmidt (1985) and Warner et al. (1988) provide evidence of a negative  
10 relationship between CEO change and stock price performance in the US. Similarly, Puffer and  
11 Weintrop (1991) find that, for a sample of 408 CEOs under the age of retirement, turnover  
12 occurs when there is a fall in the expected annual earnings per share. In the UK context, Dahaya  
13 et al. (1998; 2002) provide evidence of a negative relationship between previous year stock  
14 performance and CEO turnover.

15 Although there is a large body of literature that provides evidence of a negative relationship  
16 between performance and CEO turnover, the decision to replace a CEO is a complex one which  
17 goes beyond firm performance. As Pitcher et al. (2000) noted, poor performance accounts for  
18 only a small proportion of the CEO turnover. This line of reasoning is consistent with the upper  
19 echelon's theory, which contends that, due to the complexity of modern organisations,  
20 managers should possess characteristics that enable them to process information effectively for  
21 decision-making, thereby moderating performance. Many studies provide evidence of how the  
22 board replaces its CEO, as well as the firm and board characteristics that could influence the  
23 dismissal decision (Dahaya et al., 2002; Laux, 2008; Berns & Klärner, 2017; Stein & Zhao,  
24 2019; Urban, 2019). Some studies provide evidence concerning how certain factors may act as  
25 moderators in the performance-CEO turnover relationship. For example, Brunello et al. (2003)  
26 show that the relationship between CEO performance and CEO turnover is dependent on the  
27 ownership structure of the firm. They show that, in firms where the CEO is not a controlling  
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3 shareholder or is unrelated to the controlling family, turnover resulting from poor performance  
4 is more likely to occur (see, Visintin et al, 2017). Similarly, Goyal and Park (2002) observe  
5 that the board leadership structure influences the sensitivity of CEO turnover to performance.  
6  
7 They argue that, when the CEO and chairperson positions are bestowed on one individual,  
8 turnover resulting from poor performance is less likely. Other researchers such as Fiordelisi  
9 and Ricci (2014) have found the culture of the firm to significantly affect the CEO turnover  
10 decisions. Specifically, they find that a corporate culture that is oriented towards control  
11 reinforces the negative relationship between performance and CEO turnover.  
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22 From a theoretical standpoint, the above review can be subsumed under two theoretical lenses:  
23 the upper echelon theory and the resource dependence theory. From the upper echelon's  
24 perspective, it is argued that the paths to organisational outcomes reflect the values and  
25 cognitive bias of top managers in the organisation. Thus, the experiences, backgrounds and  
26 characteristics of top managers shape their cognitive perspectives and explain the differences  
27 in organisational performance. Taken together, the upper echelon theory posits that the extent  
28 to which organisational strategies and outcomes affect CEO turnover are shaped by the  
29 demographic characteristics (such as age, tenure, education and experience) of the executive  
30 management (Hambrick & Mason, 1984). Consequently, it is important that the board take into  
31 account the moderating role of demographic factors when considering a replacement decision.  
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33 In a similar vein, the resource dependence theory argues that a firm's survival and competitive  
34 advantage depend on the resources available to it (Pfeffer & Salancik, 1978). These resources  
35 can be derived internally and externally. The CEO's experience and networks constitute an  
36 important resource to the firm. Prior studies such as Liu (2014) provide theoretical and  
37 empirical evidence that the experience and networks of the CEO are important resources to the  
38 firm. To Hambrick and Mason (1984) and Hitt and Tyler (1991), the consideration of the  
39 personal and leadership characteristics of top managers is necessary for a more complete test  
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3 of upper echelon and resource dependence theories. In this respect, resource dependence theory  
4 has also been used to explain the firm's management of environmental contingencies and  
5 uncertainties. Pfeffer and Salancik (1978) argue that, in an attempt to remedy poor performance  
6 associated with organisational misalignment with the environment, a firm may replace a CEO  
7 with someone who better understands the environment and has the technical skills to better  
8 manage the environmental factors affecting the firm's performance. For example, a non-  
9 performing CEO may be replaced in response to market reactions. Pfeffer and Salancik (1978)  
10 further argue that environmental contingencies and interdependencies influence the  
11 distribution of power within an organisation. This in turn will affect the tenure and selection of  
12 key executives, including the CEO, as well as the organisational policies and structures. For  
13 instance, recent studies (Arthaud-Day et al., 2006; Zhang, 2006), through RDT lenses, found  
14 that CEO tenure and turnover can be associated with not just poor performance but also with  
15 environmental uncertainty, and competition. Similarly, You and Du (2012) from the RDT  
16 perspective provide evidence that politically connected CEOs are less likely to be fired. Using  
17 a multi-theoretical framework that is based on the upper echelon and resource dependence  
18 theories, we examine the moderating role of three key CEO attributes, namely, CEO internal  
19 experience, CEO network size and CEO age, on the performance-CEO turnover relationship.  
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### 41 ***CEO internal experience***

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44 Prior literature has predominantly focused on the tenure of the CEO as a proxy for experience  
45 (Walters et al., 2007) or power (Brookman & Thistle, 2009; Dikolli et al., 2014; Al-Dhamari  
46 et al., 2020), which is usually measured as the number of years in office. However, beyond  
47 tenure in office, some CEOs have prior experience of working in the company, which they  
48 bring to their role as CEO and which also means that they are familiar with the company's  
49 internal workings and strategic decision-making process. This internal experience garnered by  
50 the CEO has been shown to have a significant effect on firm outcomes. For instance, Cline and  
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3 Yore (2016) find that CEOs with significant internal experience increases firm value. Similarly,  
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5 Brockman et al. (2018) in a study of US firms show that CEOs with more internal experience  
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7 are more likely to provide voluntary and accurate earnings forecasts than CEOs with less  
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9 internal experience. In a meta-analysis of 13,587 CEOs, Schepker et al. (2017) provide  
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11 evidence that the CEO's internal experience is positively related to long-term firm performance  
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13 and such CEOs are less likely to engage in strategic change. While these studies focus on the  
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15 effect of the CEO's internal experience on the firm, we have less understanding on whether the  
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17 board considers this specific CEO attribute in making a replacement decision. There are three  
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19 reasons why the CEO's organisational experience may influence the board's decision to fire  
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21 the CEO. First, based on the propositions of resource dependency theory, Pfeffer and Salancik  
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23 (1978) argue that directors and managers provide links to important resources for the firm.  
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25 Thus, the knowledge and skills acquired by the CEO from spending several years in the  
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27 company may serve as an important resource (Cline & Yore, 2016) for the firm to the extent  
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29 that replacing the CEO with an alternative may be a difficult decision for the board. Second,  
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31 the literature on CEO succession (Barron et al., 2011) often compares internal and external  
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33 succession in relation to firm strategic choices and performance. While internal succession is  
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35 often linked to continuity, external succession is associated with strategic change. Therefore,  
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37 if a firm prefers stability and continuity, the board may be less willing to dismiss a CEO who  
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39 has spent a good number of years in the company. As noted by Fiordelisi et al. (2014), the  
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41 culture of the company may determine the CEO replacement decision. They argue that firms  
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43 with a culture of preference for continuity and stability are less likely to dismiss poorly  
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45 performing CEOs. Third, Vefas (2003) argues that, as managers and directors work together,  
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47 they tend to develop cordial relationships. This again makes it difficult for the board to dismiss  
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49 the CEO even in the case of poor performance. Moreover, in the UK the market for CEOs is  
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51 thin making it difficult to find a competent replacement (Dedman and Lin, 2002), therefore,  
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3 firms may be unwilling to dismiss a CEO with years of internal organisation experience. In  
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5 the light of the foregoing and consistent with the resource dependency theory, we therefore  
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7 argue that in the UK, CEOs with greater organisational experience are less likely to be  
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9 dismissed because they tend to have superior knowledge about the firm and access to resources  
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11 (Brockman et al., 2019). Consequently, the CEO's internal experience moderates the  
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13 relationship between performance and turnover. Thus, we put forward the following  
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15 hypotheses:

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19 *H1a: There is a negative relationship between the CEO's internal experience and CEO*  
20 *turnover.*

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23 *H1b: The CEO's internal experience negatively moderates the performance-CEO turnover*  
24 *relationship.*

### 25 **CEO network size**

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27 The CEO network size refers to the number of connections a CEO has accumulated over the  
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29 years. This is measured by estimating the number of overlaps with other directors through  
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31 employment, leisure activities, and education (see Fracassi & Tate, 2012). While prior studies  
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33 (Rahman & Chen, 2022) on networks have mainly examined the implications of a director's  
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35 networks for firm governance and performance, however little attention has been given to  
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37 whether the board considers CEO network in deciding to replace a poorly performing CEO.  
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39 On the one hand, it is argued that the networks and connections acquired by the CEO over the  
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41 years constitute an important resource to the firm and a valuable human capital to the CEO  
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43 (Zang et al., 2022; Miranda-Lopez et al. 2019). Thus, RDT theorizes that networks can be an  
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45 important information channel to the firm and a source of competitive advantage (Miranda-  
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47 Lopez et al., 2019; Fang et al., 2018, Fralich and Fan, 2015). Jandik et al. (2019) suggest that  
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49 people higher up the social hierarchy, such as CEOs, possess unique opportunities to collect,  
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51 process and control valuable information, which may increase their power and influence. From  
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53 resource dependency perspective, we argue that CEOs with larger network will have access to  
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55 information and resources and hence may have a positive effect on firm value. On the other  
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3 hand, Fan et al. (2019) find that board-CEO friendship ties have a negative effect on firm value  
4 but that professional ties positively impact on firm value. Likewise, Brown et al. (2012) find  
5 that the size of the CEO's network increases the CEO's compensation but reduces the  
6 sensitivity of the CEO's pay to performance. Similarly, Fracassi and Tate (2012) find that  
7 CEOs with larger networks have a greater influence on the board and such boards are less  
8 effective in discharging their monitoring responsibility, thus resulting in lower turnover-  
9 performance sensitivity. Closely related to our study is that by Liu (2014) which finds CEO  
10 connectedness increases CEO outside options, which in turn increases the likelihood of CEO  
11 turnover in the North American context. The study concludes that a CEO's network provides  
12 an incentive for managers to move jobs, which leads to turnover. We extend this study by  
13 testing whether the CEO network influences the board's decision to fire a CEO and further  
14 examine the combined effect of CEO network and performance on CEO turnover. Consistent  
15 with prior studies (Nguyen, 2012; Chahine et al., 2019; El-Khatib et al., 2021), we contend that  
16 CEOs with a large network size tend to be more powerful and influential, which increases  
17 entrenchment tendencies and reduces board monitoring (Fan et al, 2021). Thus, CEOs in such  
18 an influential position can have a negative and significant effect on board decisions (Chikh &  
19 Filbien, 2011; Fracassi, 2017, Chahine et al., 2019). Consequently, we expect that in deciding  
20 to dismiss a CEO, the board may consider not only performance but the implications of the  
21 CEO network size on firm's overall outcome because of board's decisions. This is particularly  
22 important given the market for CEOs in the UK is thin (Dedman and Lin, 2002) which limits  
23 the availability of CEO with considerable networks. We expect the size of CEO network in the  
24 UK and its interaction with performance to negatively influence CEO dismissal decisions. We  
25 put forward the following hypotheses:

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28 *H2a: There is a negative relationship between the CEO's network size and CEO turnover.*

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31 *H2b: The CEO's network size negatively moderates the performance-CEO turnover  
32 relationship*

### *CEO age*

Theoretical and empirical studies have attempted to establish a link between CEO age and various firm outcomes such as performance (Zhang & Rajagopalan, 2010; Ali et al., 2022), the riskiness of corporate policies (García-Gómez, 2023; Serfling, 2014), mergers and acquisitions (Yim, 2013; Zhang et al., 2016), R&D (Baker & Muller, 2002), corporate social responsibility (Meier & Schier, 2021) and financial reporting quality (Huang, 2012); the findings have produced inconclusive results. On one hand, studies find that older CEOs are more experienced to the extent that such quality improves financial performance. However, others find older CEOs to be more conservative, less likely to take risky decisions (Vroom & Pahl, 1971; Hambrick & Mason, 1984) and more likely to stick to the status quo, which negatively impacts firm performance. While these studies examined the association between CEO age and firm decisions, there is, however, little or no evidence on how the CEO's age impacts the board's decision to fire the CEO. Some studies offer insights. McClelland et al. (2012) found that the CEO career horizon impacts future firm performance. They argue that CEOs with shorter career horizons proxied by age are more risk averse and consequently exert negative effects on future firm performance. Similarly, Belezon et al. (2019) assert that there is a positive correlation between CEO age and tenure. This suggests that older CEOs are more likely to have longer tenure and that helps the board to learn about the CEO's ability over the years. Therefore, if there is a persistent performance decline, the board is more likely to dismiss an older CEO because they have superior knowledge of the CEO's inability to turn around the situation. Furthermore, in most cases, poor performance may require a change in strategy; however, a change in strategy is a risky decision as it could have either positive or negative consequences. Given the evidence of prior studies (Zhang et al., 2016; Farag & Mallin, 2018) of a positive relationship between risk aversion and age, it may be argued that, when a firm is performing poorly, a change of strategy might be required and that older CEOs (who may have

longer tenure) are likely to be fired as they may resist the proposed change in strategy due to risk aversion. Therefore, from the upper echelon theoretical perspective, we argue that the CEO's age is an important demographic factor that could influence the firm's strategic decisions, including the CEO turnover decision. Thus, when firm performance declines, there is a greater incentive for the board to fire an older CEO. In relation to CEO turnover, prior studies (Chen et al., 2019; Li and Patel, 2019; Brookman and Thistle, 2009) have mainly employed CEO age as a control variable. In this study, we argue that CEO age is an important factor that could influence the board's decision to replace the CEO. Similarly, and from the resource dependency standpoint, the wealth of knowledge and experience that a CEO may have accumulated over the years is a valuable asset to the firm which may impact the dismissal decision. On the other hand, older CEOs may be close to retirement and may not be as agile and innovative as younger CEOs. Therefore, when firm performance is on the decline, there is a greater incentive to fire older CEOs. Grounded in the above argument we posit that the likelihood of CEO turnover increases with age and that, in the case of poor performance, older CEOs are more likely to be dismissed. We state the following hypotheses:

*H3a: There is a positive relationship between CEO age and CEO turnover.*

*H3b: The CEO age positively moderates the performance-CEO turnover relationship.*

### **Data source and model**

We obtain data in respect of CEO attributes and corporate governance for the period 1999 through 2018<sup>3</sup> from the BoardEx database, which provides firm-specific governance data and directors' data. Firm financial data were obtained from Thomson Reuters Eikon. The data cover all companies from the FTSE 350 Index with the exception of financial companies. The FTSE 350 Index comprises the largest 350 firms on the London stock exchange by market

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<sup>3</sup> The time period 1999-2018 was as a result of data availability at the time of collecting the data. We have not collected additional years to avoid the impact of COVID on the data from 2019.

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3 capitalisation. The size of these firms adds to the complexity involved in the board's decision  
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5 to fire the CEO; the personal attributes of the CEO are therefore more likely to impact the  
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7 strategic decision process. The final sample is an unbalanced panel data comprising of 157  
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9 firms with 2,575 firm-year observations after deleting financial firms and firms with  
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11 insufficient data. See Table II panel A.  
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### 14 ***Measurement of variables***

#### 15 ***Dependent variable***

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18 The dependent variable for the study is CEO turnover. We follow prior studies such as  
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20 Fiordelisi & Ricci et al. (2014) and Peasnell et al. (2005) to measure CEO turnover (CEOT) as  
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22 a dummy variable which takes the value of 1 if there is a change in CEO with respect to the  
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24 previous year and 0 otherwise.  
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#### 27 ***Independent variables***

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29 *Firm performance:* to measure firm performance, we use the return on asset (ROA). The ROA  
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31 shows how managers have efficiently utilised the firm's asset and it is important for the survival  
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33 of the firm. It is observed from prior studies that boards mostly use accounting performance  
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35 measures such as ROA in deciding whether to replace a CEO (Weisbach, 1988, Fiordelisi &  
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37 Ricci, 2014). We use the one-year lag of ROA as prior research suggests that previous  
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39 performance is likely to affect the CEO turnover decision (Peasnell et al., 2005).  
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43 *CEO attributes:* we focus on three key CEO attributes that are widely researched, easily  
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45 identified, readily available and can be objectively measured. They are: CEO internal  
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47 experience (CEO INTEXP), CEO network size (CEO network) and CEO age. CEO internal  
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49 experience is measured as the number of years a CEO has spent in the company (Brockman et  
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51 al., 2019). Following Fracassi & Tate (2012), we measure CEO network as the number of  
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53 overlaps with other directors through employment (serving on same boards), other activities  
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55 (such as club membership) and education (attending the same school). This data is readily  
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3 available on the BoardEx database. In line with Brunello et al. (2003), we measure CEO age in  
4 years as the age of the CEO at the end of that financial year.  
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### 7 ***Control variables***

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10 In addition to the main variables, we control for other firm-specific and CEO variables that  
11 may affect CEO turnover. Following prior studies (Chen et al., 2019; Liu, 2014, Fiordelisi &  
12 Ricci, 2014), we control for board size and board independence measured as the number of  
13 directors on the board and the ratio of independent directors on the board respectively. Next,  
14 we control for the size of the firm. In addition, the complexity of the firm increases with size,  
15 which may affect the likelihood of CEO turnover. Following Chen et al. (2019), Liu (2014),  
16 Fiordelisi and Ricci (2014), we measure firm size as the natural log of total assets. When a firm  
17 is performing poorly, debt holders are likely to exert influence on the board's decision-making  
18 process. We therefore control for the firm's leverage measured as the ratio between total debt  
19 and total asset (Chen et al., 2019, Liu, 2014). The growth opportunities of the firm have been  
20 shown to influence the decision to fire a poorly performing CEO. We measure growth  
21 opportunities as the ratio between total capital expenditure and total assets (Chen et al., 2019;  
22 Fiordelisi & Ricci, 2014). The liquidity of the firm may also determine the turnover decision;  
23 therefore, we control for firm cash measured as the natural logarithm of cash and cash  
24 equivalent. With reference to the incumbent CEO and in line with prior studies, we include the  
25 following control variables: tenure, which is measured by the number of years the CEO has  
26 been in position (Mitra et al. 2019; Liu, 2014, Fiordelisi & Ricci, 2014). The CEO gender is a  
27 dummy variable with a value of 1 if the CEO is male and 0 if otherwise (Fiordelisi & Ricci,  
28 2014). The CEO compensation has been shown to affect the turnover decision. We control for  
29 two major components of the CEO's compensation package. Firstly, cash compensation  
30 represents the wealth of the CEO that is not directly affected by current year's firm  
31 performance. We measure cash compensation as the total CEO cash remuneration. Secondly,  
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the CEO equity-based compensation represents the wealth of the CEO that is directly related to the performance of the firm (stock price). We measure this as the proportion of the CEO's total compensation represented by equity incentives (Fiordelisi & Ricci, 2014). Lastly, we control for year and industry fixed effect. To address the potential effect of outliers, all variables apart for the dummy variables are winsorized at the 99% level. Table I shows the definition of the variables.

*[Table I near here]*

Following prior studies (Fiordelisi and Ricci, 2014) we estimate the following probit regression model to examine the impact of CEO attributes on the turnover decision:

$$Pr (CEOT)_{it} = \beta_0 + \beta_1 firm\ performance_{i,t-1} + \beta_2 CEO\ INTEXP_{i,t-1} + \beta_3 CEONetwork_{i,t-1} + \beta_4 CEO\ age_{i,t-1} + \beta_5 (Control\ variables) + \delta_t + \gamma_i \quad (1)$$

Next, to explore the sensitivity of the performance-turnover relationship to CEO attributes we interact each CEO attribute with firm performance; we estimate the following probit regression model:

$$Pr (CEOT)_{it} = \beta_0 + \beta_1 firm\ performance_{i,t-1} + \beta_2 CEO\ INTEXP_{i,t-1} + \beta_3 CEONetwork_{i,t-1} + \beta_4 CEO\ age_{i,t-1} + \beta_5 CEO\ INTEXP_{i,t-1} * ROA_{i,t-1} + \beta_6 CEONetwork_{i,t-1} * ROA_{i,t-1} + \beta_7 CEO\ Age_{i,t-1} * ROA_{i,t-1} + \beta_8 Control\ variables_{i,t-1} + \delta_t + \gamma_i \quad (2)$$

All variables are defined in Table I,  $\delta_t$  and  $\gamma_i$  represent year and industry effects respectively.

### **Descriptive statistics**

Table II displays the sample selection procedure and the descriptive statistics for the main variables and all firms in the sample. Beginning with the dependent variable, we find that CEO turnover on average is 11% with a standard deviation of 0.32. Regarding the CEOs' specific attributes, on average, CEOs have spent 11 years in the firm, with a network size of 1086. This figure indicates the average number of connections a CEO has established with other directors by way of employment, education or other activities. The average age of CEOs in the sample

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3 is 52 years with a median of 52. Regarding the structure of the board, on average, boards in the  
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5 sample have a size of nine members, with independent directors constituting 55%.  
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8 *[Table II near here]*  
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10 Table III reports the Pearson's correlation amongst the variables. We find a statistically  
11 significant negative correlation between ROA and CEO turnover. The correlation results for  
12 the independent variables CEO attributes show that there is a significant negative correlation  
13 between CEO internal experience and CEO network size. The correlation between CEO age  
14 and CEO turnover is positive. From the table, we observe that there is generally a low  
15 correlation amongst the variables, with the highest coefficient 0.66. This is below the  
16 acceptable threshold, suggesting that multicollinearity is not likely to be a concern in our  
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30 *[Table III near here]*  
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32 *[Table IV near here]*  
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### 35 **Results and discussion**

36 Table IV presents the results of the probit analysis of the effect of firm performance on CEO  
37 turnover as well as the interaction between CEO attributes and firm performance. The marginal  
38 effects of the results are presented alongside the estimated coefficients. As noted by Powers  
39 (2005), it would be misleading to interpret the coefficient of probit and logit models, especially  
40 those involving interaction terms. To overcome this problem, Green (2000) suggests estimating  
41 the marginal effects at the mean values of all variables. Therefore, in all tables, we present both  
42 the coefficient and marginal effects of the probit models. However, we rely on the results of  
43 the marginal effect to provide a robust economic explanation of our results. Panel A of Table  
44 IV presents the effect of firm performance on CEO turnover. From column 1b, we find a  
45 negative and significant relationship between performance and CEO turnover, suggesting that  
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3 as performance declines CEO turnover increases. Specifically, the marginal increase in the  
4 likelihood of CEO turnover for a marginal decrease in previous performance is 0.027 percent.  
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6 The effect is negative and statistically significant at the 5% level. This result is in line with  
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8 previous studies in the UK, Conyon and Florou (2002) and Chen et al. (2019), and in the US,  
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Panel B of Table IV examines the effect of various CEO attributes on CEO turnover. From the table, we observe a significant negative effect of CEO internal experience on turnover. The results indicate that a one standard deviation increase in CEO internal experience induces a 12% decrease in CEO turnover probability. The significant negative result supports hypothesis 1a and indicates that CEOs with more internal experience are less likely to be dismissed. This result provides support for the resource dependence theory, indicating that the internal experience of the CEO is an important asset to a company. For example, Brockman et al. (2019) note that CEOs with more internal experience tend to be more familiar with the operations of the firm and this might lead to strong relationships with board members and other employees. Also, such CEOs might have gained the trust of other stakeholders such as suppliers and creditors and can be privy to important information that provides enormous benefits to the firm. It may therefore be more difficult to replace such CEOs. Again, the literature on CEO tenure argues that longer tenure increases CEO power and results in entrenchment (Tuwey and Tarus, 2016). This kind of tenure-power relationship may be pronounced for CEOs who have spent a considerable number of years with the firm before becoming the CEO. Therefore, the CEO's internal experience, which combines years of service in the firm with years in office as a CEO, further increases the CEO's power and influence on the board's replacement decisions. Moreover, friendly relationships might have been established with the board when a CEO has spent many years in the firm, which may influence the board's decision process (Vefas, 2003).

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3 Next, we document the effects of CEO network size on CEO turnover in Table IV. We find a  
4 negative effect of CEO network size on the probability of CEO turnover, rendering support for  
5 hypothesis 2a. The results are significant at the 5% level. Model 2b of the table suggests that a  
6 one standard deviation marginal increase in CEO network size results in a 0.0098 percentage  
7 point decrease in CEO turnover probability. This suggests that CEOs with a large network size  
8 are less likely to be dismissed. The finding provides support for the resource dependence  
9 theory, which argues that the top management team's networks increase the firm's competitive  
10 advantage and such networks provide avenues through which information flows to the firm  
11 (Hambrick and Mason, 1984; Daily et al., 2000). Such CEO networks may tend to insure the  
12 CEO against dismissal and offer them more employment opportunities.  
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17 The third CEO attribute considered is CEO age. We find a positive and significant effect of  
18 CEO age on CEO turnover probability at the 1% level, suggesting that the likelihood of CEO  
19 turnover increases with age. The result supports hypothesis 3a and is in tandem with previous  
20 studies. For instance, Jenter and Lewellen (2017) report that turnovers are significantly more  
21 likely for CEOs that are closer to retirement. Similar results were documented by Chen et al.  
22 (2019) and Fiordelisi et al. (2014). The results also resonate with the findings of Murphy and  
23 Zimmerman (1993) which show that older CEOs are more conservative in their decision-  
24 making in that they prefer to stick to the status quo and are less innovative, leading to poor firm  
25 performance (Zhang & Rajagopalan, 2010) and consequently dismissal. This is in line with the  
26 Upper Echelon Theory (Hambrick and Mason, 1984) which suggest that the strategic direction  
27 of the firm is influenced by the attributes of the CEO. Therefore, the board may take this into  
28 consideration in deciding to fire a CEO.  
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33 In panel C of Table IV, we explore the moderating effects of CEO attributes on the  
34 performance-turnover relationship. First, we find that the interaction between CEO INTEXP x  
35 ROA is negative and statistically significant at the 1% level, suggesting that the combined  
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3 effect of firm performance and CEO's internal experience reduces the chances of the CEO  
4 being dismissed. This result provides support for hypothesis 1b. One plausible explanation may  
5 be that the CEO's internal experience may not only lead to familiarity with the firm's  
6 operations but may also engender trust and loyalty between the CEO and board members,  
7 thereby making it more difficult for the CEO to be dismissed. The result supports the resource  
8 dependency theory as the knowledge and experience of working with the firm and its  
9 stakeholders over the years may be an invaluable resource to the organisation. Moreover,  
10 Dikolli et al. (2014) note that the monitoring intensity reduces for CEOs who have been with  
11 a firm for many years and have vast knowledge of the firm's operations. Similarly, Brockman  
12 et al (2019) find that investors react more strongly to earnings forecast issued by CEOs with  
13 internal experience. Taken together, a CEO's long internal experience regarding their firm's  
14 operations may be seen as a valuable resource to the firm, in line with the resource dependency  
15 theory, thereby influencing CEO turnover decisions.

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33 Next, we find the interaction effect between CEO Network and ROA to be positive and  
34 statistically significant at the 5% level. This finding is contrary to our expectation and hence  
35 our hypothesis 3a appears unsupported. This result indicates that the negative effect of  
36 performance on CEO changed to positive when performance is interacted with CEO Network,  
37 suggesting that the effects of CEO network far outweigh the effects of performance on CEO  
38 turnover. Thus, CEOs with a large network size have better employment opportunities  
39 elsewhere and are likely to leave the firm rather than being dismissed by the board. Such a  
40 CEO's departure from the firm may be driven by personal connections rather than firm  
41 performance. This supports the argument by Liu (2014) that CEOs with larger networks have  
42 more outside options, therefore turnover is more likely for such CEOs. Similarly, Nguyen  
43 (2012) finds that CEOs with strong social connections are more likely to find new and better  
44 jobs.

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3 Lastly, the coefficient of interaction between CEO Age and ROA reveals a statistically positive  
4 effect on CEO turnover at the 1% level. The result therefore supports hypothesis 3b. This  
5 finding supports the upper echelon theory which suggests that the characteristics of CEOs  
6 affect the strategic choices of the firm. Thus, older CEOs who are known to be risk averse,  
7 might be less willing to take on risky strategic choices that may turn around the fortune of  
8 poorly performing firms. Therefore, the board sensing this potential resistance is more likely  
9 to fire such CEO. Indeed, prior studies (Serfling, 2014; Vroom & Pahl, 1971; Hambrick &  
10 Mason, 1984) find that older CEOs are more risk averse and less likely to take up risky strategic  
11 choices. This result may also be explained by the fact that older CEOs may not have the appetite  
12 to continue even with well-performing firms given their age and proximity to retirement (see,  
13 Zhang et al., 2016; Farag & Mallin, 2018).

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Regarding the control variables, we find that board independence, firm size and CEO tenure increase the likelihood of CEO turnover, as documented in the extant literature. However, we find that both CEO cash compensation and CEO equity compensation reduce the likelihood of CEO turnover.

### **Robustness check**

To check the robustness of our results, we re-run our regressions including the interaction terms successively. As shown in Table V, the results appear similar. We also use an alternative measure of performance (ROE and Tobin's q), the results obtained are qualitatively similar to those obtained in Table V.

*[Table V near here]*

*[Table VI near here]*

*[Table VII near here]*

### ***Further tests: Board Independence***

In this section, we carry out sub-sample analysis to check whether firms with a higher proportion of board independence may influence the effect of CEO attributes on the performance-CEO turnover relationship. Scholars widely agree that the nature and composition of the board of directors charged with the responsibility of supervising and monitoring a firm's policy choices represent an important corporate governance mechanism in curbing conflicts of interest between managers and shareholders (Fracassi & Tate, 2012). Research evidence indicates that firms with a high proportion of independent directors reduce information asymmetry, should suffer less agency problems that distort corporate policy choices, while the converse may be the case for firms with a low proportion of independent directors (Goh et al., 2016; Jensen and Meckling, 1976). However, regarding the relationship between board independence and CEO turnover, the results so far have been inconclusive. For example, whereas some studies (e.g., Weisbach, 1988; Huson et al., 2001) in the US context and Dahaya et al. (2002) in the UK find evidence that independent boards are more likely to dismiss poorly performing CEOs, other studies provide inconsistent evidence. For example, Dedman (2003), Franks et al. (2001) and Dimopoulos and Wager (2016) find that there is no impact of independent directors on the likelihood of CEO turnover after poor firm performance. Similarly, in a meta-analysis study, Schepker et al. (2017) find that the relationship between forced CEO turnover and firm performance is weakened by board independence. As noted by Pearce and Zahra (1992), board independence is crucial when examining the relationship between CEO succession and firm performance. Given the empirical controversy surrounding the effects of board independence on the performance-CEO turnover relationship, we carry out a further test to rule out the effects of having more independent directors on our results. To



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3 explore this effect, we re-run our regression with only boards with a higher proportion of  
4 independent directors (above 50% independent directors on the board).  
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8 *[Table VIII near here]*  
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10 We present the results for our sub-sample analysis in Table VIII. From the table, we observe  
11 that the results are similar to the findings of tables V and VI with the exception of the interaction  
12 variable (CEO network x ROA), which appears insignificant. The results suggest that a board  
13 having a high proportion of independent directors does not have any significant bearing on  
14 CEO turnover, rendering some support for the studies of Dedman (2003), Franks et al. (2001)  
15 and Dimopoulos and Wager (2016), who found no impact of independent directors on the  
16 likelihood of CEO turnover after poor firm performance.  
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## 29 **Conclusion**

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31 Prior literature examining CEO turnover has focused predominantly on the effectiveness of the  
32 board in disciplining poorly performing CEOs by terminating their employment, with relatively  
33 little attention on CEO attributes and the CEO's own circumstances (see Brickley, 2003; Liu,  
34 2014). In this paper, we extend CEO turnover literature by analysing the effects of firm  
35 performance on CEO turnover and the moderating role of selected CEO attributes on the  
36 performance-CEO turnover nexus.  
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45 Using a sample of firms from the FTSE 350 Index over the 1999 - 2018 period, our results  
46 provide a number of interesting findings. First, our results indicate that firm performance has  
47 a negative and significant impact on CEO turnover, thereby confirming the conclusions  
48 documented in the existing literature that increased firm performance reduces CEO turnover.  
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50 Regarding the CEO attributes and CEO turnover, our results show that selected CEO attributes  
51 appear to have a significant bearing on CEO turnover. Further analysis reveals that selected  
52 CEO attributes, namely CEO internal experience, CEO network size and CEO age, moderate  
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3 the relationship between firm performance and CEO turnover. More specifically, we find that  
4 the CEO internal experience and performance combined reduce the likelihood of the CEO  
5 being fired. The results render some support to the resource dependence theory, indicating that  
6 the internal experience of the CEO constitutes a valuable asset to a company. However, we  
7 find the combined effect of firm performance and CEO network size and CEO age to increase  
8 the likelihood of CEO turnover. The results suggest that the combined effects of performance  
9 and CEO network; performance and age far outweigh the importance of performance as a factor  
10 influencing CEO turnover decisions. It may therefore be concluded that CEO network  
11 combines with performance to provide a greater incentive for CEOs to move jobs compared  
12 with firm performance alone. Similarly, CEO age may also be seen as an important resource in  
13 terms of experience which moderates the performance-CEO turnover relationship. Taken  
14 together, CEO network and age play moderating roles to expand CEO employment  
15 opportunities. Lastly, our results also reveal that firms with a high proportion of independent  
16 directors have insignificant bearing on the association between CEO network and performance-  
17 turnover nexus.

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19 The results documented above imply that CEO attributes exert a greater influence on CEO  
20 turnover decisions compared to prior performance. Prior performance only provides a partial  
21 explanation for CEO turnover. From a practical perspective, our results imply that board of  
22 directors should pay more attention to CEO attributes and personal circumstances in their  
23 decisions to hire and fire executive managers as these factors do not only affect a wide variety  
24 of firm activities but also provide employment options and opportunities for CEO. Further  
25 implication of the findings of this study is that past performance has a limited explanatory  
26 power for CEO turnover and the combined effect of firm performance and CEO network size  
27 and CEO age play significant roles in CEO turnover decisions. Taken together, our results  
28 imply that the combined effects of performance and CEO network; performance and age far

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3 outweigh the importance of performance as a factor influencing CEO turnover decisions,  
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5 indicating that CEO characteristics constitute important resources that drive corporate  
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7 decisions.  
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10 Another key contribution of this paper is our theoretical framework that combines the upper  
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12 echelons and resource dependence theories in explaining how CEO attributes and firm  
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14 performance influence CEO turnover. The upper echelons theory suggests that CEO  
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16 characteristics, such as their values, experience, and cognitive processes, affect strategic  
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18 decision-making and ultimately firm performance. Meanwhile, the resource dependence theory  
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20 highlights the importance of external resources and the role of the board of directors in  
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22 obtaining them. Our framework posits that CEO attributes affect firm performance, which in  
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24 turn affects the board's perceptions of the CEO's effectiveness. The board's assessment of the  
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26 CEO's performance and their access to external resources shape their decision-making process  
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28 regarding CEO turnover. In this context, independent directors are expected to play a critical  
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30 role in CEO turnover decisions by providing unbiased assessments of CEO performance and  
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32 reducing CEO entrenchment. By integrating these theories, our framework provides a  
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34 comprehensive understanding of the complex relationships between CEO attributes, firm  
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36 performance, and CEO turnover and highlights the important role that independent directors  
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38 play in corporate governance.  
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44 Nevertheless, despite the contribution of this paper, its limitation should be explicitly  
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46 acknowledged. It is important to point out that our sample consists of only large firms; that is,  
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48 FTSE 350 listed firms with good corporate governance systems. More studies on CEO  
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50 attributes and personal circumstances appear warranted. We urge that future studies should  
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52 examine CEO attributes along the lines pursued in this study, considering both listed and  
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54 private firms across all industries and in cross-country study to increase generalisability of the  
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56 findings. Also, this study has examined three CEO attributes. Future studies should examine  
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3 other CEO attributes such as ethnicity, religion, educational background to ascertain the impact  
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5 on turnover decisions.  
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## Appendix

**Table I: Variable measurement**

Variable		Definition	Source
CEO Turnover	(CEOT)	This is a dummy variable with value of 1 if there is a change in CEO with respect to the previous year and 0 otherwise	BoardEx
Firm performance	(ROA)	The ratio between Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA) and total assets	Thomson Reuters Eikon
CEO Internal Experience	(CEO INTEXP)	The number of years spent in a company	BoardEx
CEO Network Size	(CEO Network)	Number of overlaps with other directors through employment, other activities, and education	BoardEx
CEO Age	(CEO Age)	The age of the CEO in years	BoardEx
Board Size	(Board Size)	The total number of directors on the board	BoardEx
Board Independence	(BoardInd)	The ratio between independent and total directors on the board	BoardEx
Firm Size	(Firm Size)	The natural log of total assets	Thomson Reuters Eikon
Leverage	(Leverage)	The ratio between total debt and total assets	Thomson Reuters Eikon
Capital Expenditure	(CapEx)	The ratio between total capital expenditure and total assets	Thomson Reuters Eikon
Firm Cash	(Firm Cash)	The natural log of cash and cash equivalent	Thomson Reuters Eikon
CEO tenure	(CEO Tenure)	The duration of the CEO's time in office	BoardEx
CEO Gender	(CEO Gender)	A dummy variable taking the value of 1 if the CEO is a male and 0 otherwise	BoardEx
CEO Cash Compensation	(CEO CashComp)	The sum of cash and bonuses received	BoardEx
CEO Equity Compensation	(CEO EquityComp)	The proportion of the CEO's total compensation represented by equity incentives	BoardEx

**Table II****Panel A: Sample Selection Procedure**

Data	Number of firms
Population FTSE-350 Index	350
<b>Deleted firms</b>	
Financial firms	107
Firms with insufficient data from BoardEx and Thomson Reuters Eikon	86
Final Sample	157

**Panel B: Descriptive statistics**

	N	Mean	Std. Dev.	Median	Min	Max
CEO Turnover	2410	0.11	0.32	0	0	1
ROA	2569	0.16	0.18	0.14	-1.80	3.19
CEO INTEXP	2574	11.39	9.11	8.9	0	44.4
CEO Network	2523	1086.61	1418.57	514	13	9537
CEO Age	2455	52.27	6.23	52	34	78
Board Size	2574	9.06	2.40	9	4	23
BoardInd	2574	54.60	14.92	55.56	11.11	92.86
Firm Size	2575	14.38	1.70	14.29	5.99	19.16
Leverage	2575	23.19	16.67	22.62	16.67	131.91
CapEx	2563	5.50	5.41	4.05	0	58.82
Firm Cash	2569	11.70	1.91	11.63	1.39	16.94
CEO Tenure	2574	5.57	5.70	3.9	0	41.4
CEO Gender	2558	0.96	0.20	1	0	1
CEO CashComp	2549	7.30	0.76	7.35	3.00	9.81
CEO EquityComp	2192	0.51	0.20	0.51	0	1

**Table III: Correlation matrix**

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 CEO Turnover	1														
2 ROA	-0.04**	1													
3 CEO INTEXP	-0.20***	0.04**	1												
4 CEO Network	-0.04**	-0.14***	-0.18***	1											
5 CEO Age	0.15***	-0.08***	0.21***	0.11***	1										
6 Board Size	0.01	-0.07***	0.05**	0.42***	0.13***	1									
7 BoardInd	0.04**	-0.03	-0.13***	0.28***	0.10***	0.13***	1								
8 Firm Size	0.03	0.03	-0.03	0.52***	0.12***	0.63***	0.43***	1							
9 Leverage	0.02	-0.10***	-0.18***	0.15***	0.00	0.13***	0.04**	0.15***	1						
10 CapEx	0.00	0.12***	-0.01	-0.06***	-0.04***	0.04**	-0.12***	-0.03*	0.08***	1					
11 Firm Cash	0.03	-0.13***	-0.07***	0.44***	0.13***	0.58***	0.40***	0.57***	0.14***	-0.11***	1				
12 CEO Tenure	-0.32***	0.02	0.58***	-0.07***	0.37***	0.01	-0.10***	-0.06***	-0.14***	0.03	-0.08***	1			
13 CEO Gender	0.01	0.01	0.13***	-0.11***	0.03	0.00	-0.07***	-0.09***	0.02	0.01	-0.07***	0.04***	1		
14 CEO CashComp	-0.14***	-0.01	-0.01	0.36***	0.16***	0.37***	0.39***	0.61***	0.07***	-0.14***	0.55***	0.04*	-0.12***	1	
15 CEO EquityComp	0.12***	0.01	-0.06***	0.29***	0.00	0.25***	0.29***	0.44***	0.02	0.00	0.32***	0.04	-0.02	0.21***	1

Note: \*, \*\*, and \*\*\* represent significance at 10%, 5% and 1% levels respectively. All variables are defined in Table I

**Table V: The effect of performance and CEO attributes on CEO turnover**

	Panel A W/O CEO attributes		Panel B W/O Interaction		Panel C With Interaction	
	Model (1a) Coefficient	Model (1b) Marginal Effect	Model (2a) Coefficient	Model (2b) Marginal Effect	Model (3a) Coefficient	Model (3b) Marginal Effect
ROA	-0.1786** (0.0737)	-0.0267** (0.0111)	-0.2555** (0.1123)	-0.0242** (0.0108)	-0.3996* (0.2316)	-0.0434* (0.0250)
CEO INTEXP			-1.2340*** (0.1369)	-0.1169*** (0.0089)	-0.5256*** (0.0980)	-0.0570*** (0.0095)
CEO Network			-0.1034** (0.0522)	-0.0098** (0.0050)	-0.1851* (0.1077)	-0.0201* (0.0114)
CEO Age			2.3914*** (0.6959)	0.2266*** (0.0702)	1.6047** (1.3650)	0.1741** (0.0741)
CEO INTEXP x ROA					-4.5520*** (0.7047)	-0.4939*** (0.0618)
CEO Network x ROA					0.2321** (0.1011)	0.0252** (0.0107)
CEO Age x ROA					0.1414*** (0.0471)	0.0153*** (0.0050)
Board Size	0.4560* (0.2428)	0.0683 * (0.0365)	0.3168 (0.2976)	0.0300 (0.0282)	0.0552 (0.2890)	0.0060 (0.0314)
BoardInd	0.0686 (0.1921)	0.0103 (0.0288)	0.5543** (0.2540)	0.0525** (0.0244)	0.8130* (0.4806)	0.0428* (0.0253)
Firm Size	0.0130 (0.0549)	0.0020 (0.0082)	0.3465*** (0.0862)	0.0328*** (0.0085)	0.1863** (0.0862)	0.0202** (0.0094)
Leverage	-0.0421 (0.0512)	-0.0063 (0.0077)	-0.0624 (0.0647)	-0.0059 (0.0061)	-0.0474 (0.0648)	-0.0051 (0.0070)
CapEx	0.0075 (0.0083)	0.0011 (0.0013)	0.0089 (0.0497)	0.0008 (0.0047)	0.0076 (0.0102)	0.0008 (0.0011)

**Table IV: Variance Inflation Factor Test**

Variable	VIF	1/VIF
ROA	1.05	0.950248
CEO INTEXP	1.56	0.640182
CEO Network	1.35	0.739608
CEO Age	1.19	0.84265
Board Size	1.67	0.600036
BoardInd	1.26	0.791715
Firm Size	2.67	0.37413
Leverage	1.07	0.93672
CapEx	1.08	0.927003
Firm Cash	2.03	0.493343
CEO Tenure	1.59	0.627729
CEO Gender	1.04	0.957338
CEO CashComp	1.46	0.685022
CEO EquityComp	1.21	0.827958
Mean VIF	1.45	

Table VI: The effect of the individual interaction of CEO Attributes on CEO turnover

	(CEO Internal Experience)	(CEO Network)	(CEO Age)		
CEO Tenure	0.281*** (0.0505)	0.0421 (0.076)	0.081*** (0.1701)	0.016 (0.0051)	-0.0330 (0.0051)
CEO Gender	0.4819 (0.3253)	0.0722 (0.0487)	0.1360 (0.2265)	0.0124 (0.0207)	-0.0386 (0.2916)
CEO CashComp	-0.0804 (0.1137)	-0.0120 (0.0114)	-0.4577*** (0.0991)	-0.0434** (0.0145)	(-0.3432)* (0.218)
CEO INTEXP	-1.3590*** (0.00754)	-0.1318*** (0.00278)	0.1675 (0.1682)	(0.0163) (0.00983)	(0.1778) (0.1662)
CEO Equity Comp	-0.1310 * (0.0738)	-0.0196 * (0.0111)	0.0867 (0.1582)	-0.0129 (0.00983)	-0.2150* (0.1662)
Year of Age	YES		YES		3.5785*** (0.488)
Industry Effect	YES		YES		(0.488) (0.0629)
Observed INTEXP x ROA	2173.912*** (0.73892)	-0.2320*** (0.0400)	1861		1861
Pseudo R-Square	0.073892	(0.0400)	0.4211		0.3159

This table reports the results for the probit regression of the impact of firm performance in Panel A, CEO attributes in Panel B and CEO attributes interaction with firm performance in Panel C on CEO turnover. All variables are defined in Table I. The marginal effects are reported alongside the coefficient. Robust standard errors are in parentheses. \*, \*\*, \*\*\* represent statistical significance at the 10%, 5% and 1% levels.

CEO Age x ROA					0.0907*** (0.0210)	0.0122*** (0.0028)
Board Size	0.4081 (0.3243)	0.0396 (0.0314)	0.4844* (0.2531)	0.0719 (0.0377)	0.0692*** (0.2604)	0.0692*** (0.0349)
Board Ind	0.5742** (0.2297)	0.0557** (0.0227)	0.0891 (0.1985)	0.0132 (0.0295)	0.1547 (0.2033)	0.0207 (0.0272)
Firm Size	0.1601* (0.0833)	0.0155* (0.0081)	0.0421 (0.0580)	0.0062 (0.0086)	0.0252 (0.0574)	0.0034 (0.0077)
Leverage	-0.0133 (0.0627)	-0.0013 (0.0061)	-0.0511 (0.0538)	-0.0076 (0.0080)	-0.0586 (0.0548)	-0.0079 (0.0073)
CapEx	0.0136 (0.0104)	0.0013 (0.0010)	0.0071 (0.0086)	0.0011 (0.0013)	0.0008 (0.0093)	0.0001 (0.0012)
Firm Cash	-0.0434	-0.0042	-0.0204	-0.0030	-0.0288	-0.0039

1							
2							
3		(0.0560)	(0.0055)	(0.0391)	(0.0058)	(0.0414)	(0.0056)
4	Tenure	0.7872***	0.0764***	0.2659***	0.0394	0.3155***	0.0423***
5		(0.1362)	(0.0109)	(0.0516)	(0.0077)	(0.0586)	(0.0076)
6	CEO Gender	0.9098***	0.0883	0.2057	0.0305	0.4651	0.0623
7		(0.3159)	(0.0314)	(0.2147)	(0.0319)	(0.3106)	(0.0419)
8	CEO Cash Comp	-0.2092	-0.0203	-0.0076	-0.0011	-0.0515	-0.0069
9		(0.1436)	(0.0140)	(0.1145)	(0.0170)	(0.1160)	(0.0155)
10	CEO EquityComp	-0.2432***	-0.0236***	-0.1411*	-0.0209	-0.1420*	-0.0190*
11		(0.0950)	(0.0092)	(0.0784)	(0.0116)	(0.0768)	(0.0103)
12	Year effect	YES		YES		YES	
13	Industry Effect	YES		YES		YES	
14	Observations	1861		1861		1861	
15	Pseudo R-Square	0.4265		0.1468		0.1247	

19 This table reports the results for the probit regression of the impact of the individual interacted variables on CEO turnover. All variables  
 20 are defined in Table I. The marginal effects are reported alongside the coefficient. Robust standard errors are in parentheses. \*, \*\*, \*\*\*  
 21 represent statistical significance at the 10%, 5% and 1% levels.

25 **Table VII: The effect of performance (ROE, Tobin's q) and CEO attributes on CEO turnover**

26		Panel A (ROE)		Panel B (Tobin's q)	
27		Model	Model	Model (B1)	Model (B2)
28		Coefficient	Marginal Effect	Coefficient	Marginal Effect
29		(A1)	(A2)		
31	ROE	-0.6554***	-0.0596***		
32		(0.2032)	(0.0184)		
33	Tobin's q			-0.4992***	-0.0445***
34				(0.1674)	(0.0156)
35	CEO INTEXP	-1.3482***	-0.1227***	-1.3074***	-0.1166***
36		(0.1437)	(0.0093)	(0.1432)	(0.0094)
37	CEO Network	-0.1126**	-0.0102**	-0.1308	-0.0117
38		(0.0522)	(0.0047)	(0.1502)	(0.0134)
39	CEO Age	2.3579***	0.2145***	2.2160***	0.1976***
40		(0.6941)	(0.0670)	(0.7124)	(0.0666)
41	CEO INTEXP x ROE	0.0375***	0.0034***		
42		(0.0122)	(0.0011)		
43	CEO Network x ROE	0.0071	0.0006		
44		(0.0062)	(0.0006)		
45	CEO Age x ROE	0.0147***	0.0013***		
46		(0.0040)	(0.0004)		
47	CEO INTEXP x Tobin's q			0.0069	0.0006



1					
2					
3				(0.0084)	(0.0008)
4					
5	CEO Network x Tobin's q			0.0690*	0.0062*
6				(0.0381)	(0.0034)
7					
8	CEO Age x Tobin's q			0.0973	0.0087
9				(0.0726)	(0.0064)
10					
11	Board Size	0.8949	0.0814	0.4852	0.0432
12					
13		(0.8118)	(0.0738)	(0.3045)	(0.0271)
14					
15	BoardInd	0.5996**	0.0542**	0.0722*	0.0064*
16					
17		(0.2491)	(0.0232)	(0.0389)	(0.0034)
18					
19	Firm Size	0.3384***	0.0308***	0.3637***	0.0324***
20					
21		(0.0814)	(0.0077)	(0.0851)	(0.0078)
22	Leverage	-0.0904	-0.0082	-0.1082	-0.0097
23					
24		(0.0654)	(0.0059)	(0.0690)	(0.0061)
25					
26	CapEx	0.0053	0.0005	-0.0017	-0.0002
27					
28		(0.0107)	(0.0010)	(0.0106)	(0.0009)
29	Firm Cash	-0.0076	-0.0007	-0.0201	-0.0018
30					
31		(0.0531)	(0.0048)	(0.0522)	(0.0047)
32	CEO Tenure	1.1365*	0.1034*	1.1090***	0.0989***
33					
34		(0.1697)	(0.0123)	(0.1659)	0.0119
35					
36	CEO Gender	0.3646	0.0332	0.3611	0.0322
37					
38		(0.2437)	(0.0222)	(0.2489)	(0.0223)
39	CEO CashComp	-0.4510***	-0.0410***	-0.0747	-0.0067
40					
41		(0.1673)	(0.0159)	(0.1336)	(0.0119)
42	CEO EquityComp	-0.1964	-0.0179	-0.1772	-0.0158
43					
44		(0.1194)	0.0108	(0.1213)	(0.0108)
45	Year effect	YES	YES		
46	Industry Effect	YES	YES		
47	Observations	1861	1861		
48	Pseudo R-Square	0.4041	0.4455		

52 This table reports the results for the probit regression of the impact of firm performance (ROE in Panel A) and (Tobin's q) in panel  
53 B) on the relationship between CEO attributes (interaction terms) with firm performance on CEO turnover. All variables are defined  
54 in Table I. The marginal effects are reported alongside the coefficient. Robust standard errors are in parentheses. \*, \*\*, \*\*\* represent  
55 statistical significance at the 10%, 5% and 1% levels.  
56  
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**Table VIII: Effect of CEO attributes on CEO turnover (High number Independent directors  $\geq$  50% Independent Directors)**

	Coefficient	Marginal Effect
ROA	-0.4151* (0.2393)	-0.0377* (0.0217)
CEOINTEXP	-0.5853*** (0.1471)	-0.0531*** (0.0127)
CEO Network	0.0367 (0.1371)	0.0033 (0.0124)
CEO Age	1.2990* (0.7765)	0.1179* (0.0714)
CEOINTEXP x ROA	-6.5653*** (1.0047)	-0.5960*** (0.0710)
CEO Network x ROA	0.0889 (0.1273)	0.0081 (0.0114)
CEO Age x ROA	0.1868*** (0.8385)	0.0170*** (0.0036)
Board Size	0.0110 (0.4836)	0.0010 (0.0439)
Firm Size	0.2011* (0.1194)	0.0183* (0.0110)
Leverage	0.1617 (0.1240)	0.0147 (0.0112)
Cap Ex	0.0103 (0.0180)	0.0010 (0.0016)
Firm Cash	-0.0493 (0.0831)	-0.0045 (0.0076)
CEO Tenure	0.4561*** (0.1465)	0.0414*** (0.0134)
CEO Gender	0.2779 (0.3137)	0.0252 (0.0283)
CEO Cash Comp	-0.2625 (0.2258)	-0.0239 (0.0206)
CEO EquityComp	-0.0905 (0.2484)	-0.0082 (0.0226)
Year effect	YES	
Industry Effect	YES	
Observations	1319	
Pseudo R-Square	0.4038	

This table reports the results for the probit regression of the impact of CEO attributes on CEO turnover for the sample consisting of a higher proportion of independent directors on the board. All variables are defined in Table I. The marginal effects are reported alongside the coefficient. Robust standard errors are in parentheses. \*, \*\*, \*\*\* represent statistical significance at the 10%, 5% and 1% levels.