The moderating effect of board size on the relationship of CEO Power and financial firm performance in the United Kingdom.

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Abstract

In this study, the moderating effect of board size on the relationship of CEO Power on the financial performance of publicy-listed firms in the United Kingdom is investigated. In this study CEO Power is measured with five individual CEO Power variables. The power of a CEO is measured by the compensation, ownership, founder status, duality, and tenure of the CEO with regards to the firm. These variables are reduced to two CEO Power indexes with the usage of principal component analysis. Based on a sample of 142 UK publicy-listed firms for a period of 2013-2018 an OLS regression analysis is performed. According to the literature, the size of the board of directors do have a significant effect on CEO Power and the financial performance of firms. However, in this study there are no significant results found with regards to the moderating effect of board size on the relationship of CEO power and financial firm performance. However, there is little evidence found in this study to support the claim that CEO power influences the financial performance of firms. This evidence is only found when financial firm performance is measured with Tobins'Q. Therefore, in the study there is no clear evidence found to confirm the two hypotheses of this study. For the other financial indicators (ROA, ROE and RET) no significant evidence was found in the regression analysis. Therefore, further research is necessary to assess the validity and generalizability of the results of this study. This study on the moderating effect of board size on the relationship of CEO Power and financial firm performance is contributing to the scarce existing literature on the influence of CEO Power and corporate governance practices in a European context.

Keywords: Corporate Governance, CEO Power, CEO Compensation, CEO Ownership, CEO Founder Status, CEO Tenure, CEO Duality, Board Size and UK publicy-listed firms.

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1   **Introduction**

Background information

In the past decades, studies have tried to investigate whether a CEO could make a significant impact on the financial performance of a firm. Based on the mainstream of literature it can be concluded that CEOs can make a significant difference within an organization when they have substantial power within the firm (Kaur & Singh, 2018; Qiao, Fung, Miao, & Fung, 2017). To guard firms for too powerful CEOs Corporate Governance mechanisms are utilized to curtail the formal power CEOs have in firms. Today the day, the term of Corporate Governance is one of the "hottest" discussed topic in Business research and a frequently researched topic by researchers and academics from multiple research disciplines. The function of Corporate Governance relies on the function that managers behave ethically and make decisions that benefits both the management and shareholders, and ultimately results in maximizing the firm's value and performance (Fauzi & Locke, 2012). Corporate Governance was long ignored because the relevance of the implementation of corporate governance mechanisms was not in sight of the management of both SMEs as global corporates. However, the wave of fraud in the United States in the 1990s helped to regain the attention of boards to start with implementing corporate governance mechanisms within their organizations, to mitigate the influence of CEOs within the firm. In addition, the recent global financial crisis in 2008-2009 which was triggered by the unforeseen failure of the bank Lehman Brothers and the significant mortgage problems, again depict the relevance of corporate governance. Consequently, the collapse of Enron one of America's largest companies has attracted the attention of businesses globally, due to the misfunction of corporate management boards (Rezart, 2016).

Besides the reason to prevent mismanagement of boards which led to the former mentioned situations, reasons to increase the implementation of corporate governance practices can also lead to more financial opportunities, firms could attain more access and larger amounts of external capital at a lower cost of capital (Bhatt & Bhatt, 2017). In addition, an increase in Corporate Governance practices will have a positive influence on the firm performance and the treatment of all the firm's stakeholders according to several studies (Claessens & Yurtoglu, 2013; Wang, Holmes Jr, Oh, & Zhu, 2015).

The CEOs position within a firm is considered as one or the most powerful position. According to the literature this should be obvious because the CEO should be able to position the firm in a way that it maximizes it ability to create wealth for the shareholders (Hambrick & Mason, 1984; Hamori & Kakarika, 2009; Papadakis, 2006; Wang et al., 2015). However, if we take the former mentioned scandals in consideration, CEOs are not always acting in the best way to maximize the creation of wealth for the shareholders of the firm, CEOs are often acting for their personal interests to achieve higher levels of compensation packages or to retain their formal power within the firm. If we follow the ongoing debate in the scientific literature this former reasoning is not as straight as it looks at the first glance. Adams, Almeida and Ferreira (2005) conclude that the power a CEO can have in an organization can have different outcomes, both positive and negative. The researchers concluded that an increase in the power of a CEO within an organization increases the amplitude of the financial performance of a firm. This implies that the probability of either well-made and tremendous decisions is significant higher for organizations where the CEO has more power over the decision-making (Adams, Almeida, & Ferreira, 2005). On the other side, a study conducted

concluded that in China a higher degree of CEO power will lead to improved short- and long-term financial performance and therefore support the notion that CEOs should have substantial power within an organization (Qiao et al., 2017).

A third study of Ting, Chueh and Chang (2017) conclude that a high degree of CEO power should not always be negative for the organization. In general, they conclude that the increase in formal power of a CEO will lead to a decrease in financial firm performance. However, CEOs can also have an impact on the reaction time of organizations when a CEO has more power, the CEO could adapt quicker to changing circumstances which will lead to an increase in financial firm performance. According to the study it is key to measure CEO power on multiple dimensions, to ensure that all the different aspects of the construct of CEO power are covered within the study. Considering these results of the former mentioned studies, it can be stated that the results are mixed and that there is not just one answer if CEO power is positive or negative associated with the financial performance of firms and that further studies are necessary to unravel this puzzle.

The complex puzzle with regards to the relationship between CEO power and financial firm performance is according to the mainstream of literature based on two main business theories, namely: Agency Theory and Stewardship Theory. Based on these theories, academics have found both positive and negative results when researching the effect of CEO Power on firm financial performance from the perspectives of the different key theories. Most of the research with regards to the topic of this research is focused on the United States or China, and just focused on the relationship of CEO power and financial firm performance. There is only little research conducted within the context of Europe and therefore indicates that more research within a European context is necessary to unravel the complex corporate governance puzzle within the literature, next to this there is also little evidence on the moderating effect of corporate governance variables on the relationship which both support the relevance of this study.

In the United Kingdom, there is an explicit Corporate Governance Code (CGC) where the most recent version has been published in July 2018. However, this CGC applies to accounting periods beginning on or after 1 January 2019. Therefore, for this research the UK CGC of 2016 will be relevant for this study. In this study, publicly listed firms on the London Stock exchange are used to collect data for this study. A reason to use the United Kingdom within this study is that firms in the United Kingdom are obligated to provide a statement about their implementation of corporate governance practices in their firm. Next to this, there is little evidence of the influence of powerful CEOs within the context of the United Kingdom, and how corporate board size is moderating this existing relationship.

The relationship between CEO power and the effect on the financial firm performance is researched quite extensively. Multiple studies have tried to quantify the concept CEO power and measures its effect on the financial firm performance. Most of the studies do not utilize the same CEO characteristics to measure the degree of CEO Power within a firm. In a study conducted by a former University of Twente student Van der Wal (2020) this topic is also studied in the same field of interest. From the suggestions of future research of the study of Van der Wal (2020) the possibility to conduct research on other possible moderators on the relationship of CEO power and financial firm performance is selected (Wal, 2020). Therefore, based on the data set of the former mentioned study, this thesis will focus on the possible moderating effect of corporate board size on the relationship between CEO power and financial firm performance in the United Kingdom.

In addition, with the former mentioned argumentation, there is little research available which include possible moderators on the relationship between the effect of CEO Power on the financial firm

performance. There are studies which have studied the relationship between corporate board size and the influence on the financial firm performance. Some studies have concluded that a greater number of directors in the board of organizations will lead to higher financial performance of firms (Anderson, Mansi, & Reeb, 2004; Williams, Fadil, & Armstrong, 2005). However, there are also studies who found the opposite and concluded that larger boards will reduce the financial firm performance (Bhatt & Bhatt, 2017; Christensen, Kent, & Stewart, 2010; Guest, 2009). Because of the mixing results it is interesting to use the board size variable as a possible moderator for this study' relationship between the effect of CEO power on financial firm performance, to ultimately broaden the existing evidence of the influence of powerful CEOs in the United Kingdom and how the corporate governance mechanisms of board size possibly can affect the power of the CEO within an organization.

2 Research objective and contribution to literature

Many studies within the field of this research are focused on the complex puzzle of the effect of Corporate Governance, a lot of research is conducted with the focus on the relationship of (single) CEO characteristics and financial firm performance. Many studies are focused on both the demographic as well as the psychological characteristics of CEOs and the influence of these characteristics on the financial performance of firms, however in many studies the researchers only focused on one single characteristic and neglected the influence of multiple characteristics. The focus of this study relies on the construct of CEO Power, which is constituted out of multiple individual CEO characteristics. However, as former mentioned recent studies are using different conceptualizations for the concept of CEO Power. In most of the studies, part of the four dimensions of Finkelstein (1992) are used, but not across all studies the same dimensions are used to conceptualize CEO Power. For instance, the study of Adams et al. (2005) focusses particularly on the dimension of structural power and therefore neglected the other three dimensions of CEO Power. This results in conclusions which could not be generalized to the whole concept of CEO Power based on the existing CEO characteristics.

To the best of my knowledge, most of the studies focusses on the three main characteristics of influence of the concept CEO Power. CEO-Duality, CEO Tenure and CEO Ownership are the most frequently used CEO characteristics when conceptualizing the concept of CEO Power (Veprauskaitė & Adams, 2013). Based on the former mentioned theoretical decisions, it would be obvious to use these three different CEO characteristics to be able to quantify CEO Power in this study. Next to this, most of the literature is focused on the effects of the agency theory but are neglecting the other side of the spectrum, in that case the stewardship theory comes forward. In this study both perspectives are taken in consideration, the hypotheses are formulated based on the agency theory because this is most widely adopted in the different mentioned studies. However, when the results of the regression are not significant there could be suggested that the stewardship theory is more and more applicable to the United Kingdom. Therefore, this study takes on a broader perspective when conducting research to be able to conclude what the effect of CEO power is on the financial performance of firms in the United Kingdom, and how board size is moderating this existing relationship.

The main objective of this study is to investigate if the size of corporate boards has a significant effect on the relationship among CEO power and the financial performance of firms. A lot of research in the mentioned relationship is conducted, however there is little research available where researchers tried to investigate if there are corporate governance mechanisms that could have a moderating effect on the influence of a powerful CEO.

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Next to this, most of the research is conducted in the context of China or the United States. Therefore, it is relevant to contribute to the literature with a study in a European context, to increase the available knowledge on the effect of corporate governance in Europe. Additionally, in previous mentioned studies, the influence of board characteristics on the financial firm performance is studied. However, in these studies there both positive and negative results reported which indicates that it is also unclear what the effect of board size could be on the relationship between CEO power and financial firm performance. Therefore, in this study it would be interesting to see what the possible moderating effect is of board size on the relationship of this study.

The theories which apply for the explanation of CEO power could also be applied for the effects of board size on the financial performance of firms and therefore are the main theories for this study which will be more extensively discussed in the literature review. However, there is no research found with regards to the specific topic of this study which implies the relevance of this study. There is no study found with the focus on the influence of CEO power on the financial performance of firms and how the board characteristic board size is affecting this relationship in a European context, especially the United Kingdom. To structure this study, a central main research question has been formulated which is utilized to structure this study.

"How is CEO Power affecting the financial performance of publicly-listed firms in the United Kingdom, and how is corporate board size influencing this relationship?"

3   Literature review & Hypothesis development

In the literature chapter relevant theories with regards to this study' topic is put forward. The chapter will start with an overview of the available literature with regards to studies conducted in the United Kingdom on the topic of the effect of corporate governance on the financial performance of firms. In addition, the studies mentioned will be later more specified to the topic of this study where the influence of CEO power on the financial performance of firms is studied. In most of the studies two different theories are utilized for explaining the phenomena of CEO power within organizations. The agency theory and stewardship theory are used to explain the effect of CEO power and its effect on the financial performance of firms. Based on the different key theories the hypotheses are drawn. This is in line with the goal of this study to investigate what moderating effect board size has on the relationship of CEO power and financial firm performance.

3.1   Corporate governance

In today's organizations, the implementation of Corporate Governance practices is an ongoing trend. Corporate Governance should be seen as the structure through which companies set objectives and the reasoning for achieving those objectives and monitoring the performance of the organization (Musa, Ismail, & Othman, 2008). Corporate Governance is known that it is divided into two main models, namely: The Anglo-Saxon model and the Continental European model. Those two models differ on different aspects, where some countries have made specific adjustments on the model to fit the country's needs. However, when controlling for the country specific adjustments, it can be claimed that corporate governance can be divided into the two main models.

3.2   Anglo-Saxon model

Looking at the origins of the Anglo-Saxon model, it can be traced back to the roots of the shareholder theory. The Anglo-Saxon Corporate Governance model is originally the model which is mostly used in the United States and the United Kingdom. Other countries in the world are also adopting this form of Corporate Governance model especially in commonwealth countries. In the existing literature the Anglo-Saxon model is also known on different names due to its characteristics (e.g. shareholder model, market-centric model, equity-based model and etc.) (Ahmad & Omar, 2016; Shleifer & Vishny, 1997). In the Anglo-Saxon model the shareholder is of key interest, therefore the responsibility of the managers is to the position the organization in a way that it is creating maximum wealth for the shareholders, as they are the owners of the company and therefore bearing the risk of the company.

        Within organizations, the board of directors represent the shareholders of the organization. The most board of directors are single tiered in firms which have implemented the Anglo-Saxon Corporate Governance model. This implies that most of the time the board of directors should be constituted out of independent and outside directors. However, many firms who a one-tier board both have non-executive as executive directors within their board of directors (Ahmad & Omar, 2016). Considering the management theory which is of relevance within this study, it can be concluded that the stewardship theory is supporting the implementation of a Anglo-Saxon type of Corporate Governance model.

3.3 Continental European model

In the Continental European Corporate Governance model, the stakeholder theory is central to the foundation of this type of Corporate Governance model. In contrast with the Anglo-Saxon model where the model only focusses on the relationship between shareholders and executives, is the Continental European model focusing on the relationship between shareholders, executives and also other relevant stakeholders from the organization. According to the literature, the most important stakeholders in the Continental European model are the employees of the organization (Cernat, 2004). Next to this, other distinctive aspects of the Continental European model are that are that major banks, and large corporates are one of the major shareholders in the organization. In line with this, the role of the stock exchange is divergent from the role of the stock exchange in the Anglo-Saxon model. The importance of stock exchange is less of interest in the Continental European model which results in hostile take-overs being restricted. These restrictions result in an economic environment where the organizations are more secured and can keep their focus more on the long-term profits instead of the short-term orientation from the Anglo-Saxon model.

With regards to the board structure, in the Continental European model a two-tier board structure (executive board and the supervisory board) is obligated. This means that the executive board is responsible for the daily running and steering of the organization. The actions of this executive board are monitored by the supervisory board which is a separate board of directors and is mainly busy with monitoring and controlling the executive board of the organization.

Aspects	Anglo-Saxon	Continental
Labour-related		
Co-operation between social partners	Conflictual or minimal contact	Extensive at national level
Labour organizations	Fragmented and weak	Strong, centralized unions
Labour market flexibility	Poor internal flexibility; high external flexibility	High internal flexibility; lower external flexibility
Employee influence	Limited	Extensive through works councils and co-determination[6]
Capital-related		
Ownership structure	Widely dispersed ownership; dividends prioritized	Banks and other corporations are major shareholders; dividends less prioritized
Role of banks	Banks play a minimal role in corporate ownership	Important both in corporate finance and control
Family-controlled firms	General separation of equity holding and management	Family ownership important only for small- and medium-sized enterprises
Management boards	One-tier board	Two-tier boards; executive and supervisory responsibility separate
Market for corporate control	Hostile takeovers are the 'correction mechanism' for management failure	Takeovers restricted
Role of stock exchange	Strong role in corporate finance	Reduced

Figure 1: Anglo-Saxon vs. Continental corporate governance: capital- and labour-related, Cernat (2004)

3.4 Corporate Governance in the United Kingdom

In the United Kingdom, the Anglo-Saxon is adopted throughout the Kingdom. This outsider dominated system is based on the one-tier board of directors as mentioned in the former paragraph. In the United Kingdom the ownership of firms is widely dispersed where a substantial number of shares are held by outside investors and shareholders. This system of corporate governance is mostly controlled by managers and directors ('agents') but are owned by the mostly outside shareholders ('principles') which is in line with the agency theory. In the case of the Anglo-Saxon type of Corporate Governance models, agency problems/conflicts occur most of the time and could have negative effect on the performance of the firms in the United Kingdom (Jensen & Meckling, 1976; Shleifer & Vishny, 1997).

However, the development of the Corporate Governance codes in the United Kingdom did not happen in just a few years. Corporate scandals in the late 1989s have highlighted the change was necessary in the UK and that the importance of clear Corporate Governance codes was needed. In 1992 the Financial Reporting Council, the Stock Exchange and the accountancy profession set up the Corporate Governance Committee (GGC) in May 1991 (Okike, 2019). This committee would become the organ of the UK which will develop and implement new corporate governance codes for the firms in the UK. In 1992 the committee was chaired by Sir Adrian Cadbury, the role of the committee in that year was to review the existing standards of corporate governance. In the published Cadbury Report in 1992, the GGC published a report which includes several recommendations and arguments to raise the standers of corporate governance in the United Kingdom. Due to the several scandals in the United Kingdom, the trust of investors was diminishing. An issue which did occur frequently was that directors would receive compensation packages which were not linked to the financial performance of the firms. These early agency conflicts resulted that the confidence of the investors of listed firms in the UK declined. These examples of issues resulted in different reports and adjustments of the Corporate Governance Code in the UK formulated by the GGC. Considering the latest publication of the Corporate Governance Code in 2016, it is interesting to see that the Committee is trying to design a corporate governance code which relies more on the Continental European model instead of the traditional Anglo-Saxon model which is known as the main corporate governance model of the UK (Okike, 2019).

Companies in the UK are obligated to give more insight in their organization by publishing more information in their annual reports. These results are not only focused on the financial performance of the firms, but it also needs to take in consideration the number of women within the organization, and other corporate governance practices if the organizations have implemented them. Organizations should implement or comply why they have not implemented such corporate governance practices.

Corporate governance mechanisms

As mentioned in the previous paragraphs, corporate governance can be divided into two main implemented models. In this study we are interested in the effect of CEO power on the financial performance of listed firms in the United Kingdom and how board size is moderating this relationship. According to the literature, the United Kingdom is likely to have implemented Anglo-Saxon type of practices as their Corporate Governance model. However, according to the study Okike (2019) the recent implementations in the last decades have resulted in the United Kingdom implementing more and more corporate governance mechanisms. With these implementations the United Kingdom is making a shift from a more Anglo-Saxon model where agency problems exits, towards a more stewardship theory based model where CEOs of organizations are expected to act as stewards for the shareholders (Okike, 2019). In this study, the moderating effect of corporate board size on the effect of CEO power on the financial performance of listed firms is of interest. The corporate governance mechanisms which are of interest in this study are more specified in detailed in the next section. Corporate governance knows many different mechanisms both external and internal. For this study, only the next three mentioned internal corporate governance mechanisms are of interest for this study since these are used within the data analysis.

Board size

Within an organization, the board of directors is considered as an important part of the organization. The size of the board is considered as one of the most important aspects of the success of the board of directors. According to the literature, the view is consistent that an larger board is more adequate in monitoring the CEO, and therefore can guard the organization for a too powerful CEO (Kiel & Nicholson, 2003). Therefore, the ability of the corporate governance mechanism of board size should not be underestimated. It is an important aspect of the organization because it affects the ability of monitoring, controlling and decision making of the organization by the board of directors. In addition to the study of Kiel and Nicholson (2003), another study also reported results which suggest that larger boards have an positive influence on the organization (Haniffa & Hudaib, 2006). This study provided evidence that larger board improves the board' diversity in contracts, expertise and experience to improve the performance of a firm. However, not all evidence is providing positive results when the size of the board is increasing. Considering the agency theory point of view, the increase in size of the board of directors leads to an increase in the cost of the agency conflicts which are more likely to occur and that the effectiveness of the monitoring is decreasing when the size of the board is increasing (Kao, Hodgkinson, & Jaafar, 2018).

In contrast with the former mentioned studies, Pucheta-Martinez and Galeggo-Alvarez (2019) have conducted a study in the effect of different board characteristics on the financial performance of firms. In their sample they have used panel-data from 34 different countries from six geographic zones: Africa, Asia, Europe, Latin America, North America and Oceana. The hypothesis in this study were drawn upon the fundamentals of the agency theory, therefore a negative relationship was expected by the researchers. Therefore, it can be concluded that there is no straight answer on the question if board size should be increased or limited to maximize the performance of the firm. At last, a study have found evidence that the influence of board size does have a moderating effect on the relationship between Research and Development expenses and the profitability of the firm. The moderating effect

was negative in this study, which implies that a larger board increases the complexity of decision-making in an organization, this conclusion is in line with the perspective of the agency (Busru & Shanmugasundaram, 2017).

Ownership

In corporate governance, ownership is an important and widely adopted corporate governance mechanism. The structure of the ownership of the firm is affecting the decision making and creation of the strategy of the firm, this is due to the different objectives of the shareholders within the firm (Busru & Shanmugasundaram, 2017). According to Jensen and Meckling (1976) the alignment of the shareholders and the managers is increasing with the increase of the ownership of the CEO within the company. Therefore, they are claiming that an increase in CEO ownership could reduce the amount of agency conflicts and thus will reduce the agency costs with the organization. However, if we consider the stewardship theory, these problems are not likely to occur because the CEO is acting out of best efforts for the shareholders regardless of ownership of the CEO (Donaldson & Davis, 1991). With those two perspectives it is likely that the outcomes of the literature are mixed, whether the ownership of a CEO has positive or negative outcomes on the financial performance of the firm.

CEO Duality

In many of the studies mentioned in this thesis, the CEO characteristic/Corporate Governance mechanism of CEO duality is mentioned in their study, or it is one of the variables utilized in the studies mentioned. CEO duality could be defined as a leadership structure where the CEO is both the chairman of the board of directors and the CEO of the organization. In those situations the CEO is in powerful position because the CEO has power in both of the leadership levels (Elsayed, 2007). According to a study conducted by Krause et al. (2017) it is claimed that considering the agency theory, the function of chairman of the board and the function of CEO should be splitted from each other (Krause, Withers, & Semadeni, 2016). According to the agency theory, CEO Duality have some consequences on the power of the CEO in the organization. When a CEO holds both of the positions, it will result in an increase of CEO power in the organization, which could ultimately harm the financial performance of the firm. However, as mentioned in this thesis, the stewardship takes on a 180-degree shift when looking at the consequences of CEO Duality. The stewardship theory claims that the increase of power for the CEO should have positive influence on the financial performance of the firm. Therefore the stewardship theory is supporting that a CEO should hold the position of chairman of the board of directors next to his main position as the CEO of the organization (Duru, Iyengar, & Zampelli, 2016). Next to the support of the stewardship theory by the researchers, Duru et al. (2016) also claimed that a more powerful CEO also increases the ability of the board of directors to provide necessary valuable resources to the organization, which ultimately results in an increase in the financial performance of the firm.

CEO Power

In this study we are interested in the effect of CEO power on the financial performance of non-financial publicly listed firm in the United Kingdom. As explained in this chapter, the phenomena around CEO power could be explained by two main theories: Agency theory and Stewardship theory. In this study it is claimed that the influence of a powerful CEO is a double-edged sword where both positive and negative study outcomes are reported. In this paragraph we will narrow down from a global description of the concept of CEO power to the available literature on the influence of CEO power on the financial performance of firms which will support this study to drawn relevant hypothesis.

3.6 **Concept of CEO power**

In general, the board of directors is seen as more powerful than the CEO in most situations, because the board of directors has the ability to make powerful decisions within in a firm with regards to the hiring, firing and developing the renumeration packages of the management of a firm. Therefore, at first glance it should look obvious that the power of a CEO is not that important when the board of directors do have substantial power within the firm. However, this former argumentation may become untrue when the power of a CEO increases substantially. When the CEO increases his or her power within the firm, they could possibly take over the power of the board of directors which could harm the performance of the firms (Daily & Johnson, 1997). The power of this CEO is not easily quantifiable and therefore a lot of research has been conducted to reach a construct for CEO power. Looking at the most cited papers within the literature with regards to CEO power, the article of Finkelstein (1992) is most often used in studies to quantify CEO power (e.g. (Adams et al., 2005; Qiao et al., 2017; Ting, Chueh, & Chang, 2017; Veprauskaitė & Adams, 2013).

Finkelstein (1992) have identified four different dimensions, which combined should cover the concept of CEO power as much as possible. The four dimensions of power: 'structural power', 'ownership power', 'expert power', and 'prestige power' are most often used to quantify the concept of CEO power and make researchers able to conduct statistical calculations to study relationships among the subject of CEO power. The first dimension, 'structural power' is according to Finkelstein (1992) the most cited type of power within the literature. Structural power is based on the formal organizational structure and hierarchical authority within organizations. Managers that have a formal right to exert influence on their subordinates are influential. Hence, CEOs with high structural power do have power over their subordinates because of their formal position within the organization. This formal structural power allows CEOs to manage uncertainty within an organization by controlling and delegating work to their subordinates. This all comes down to the notion that a CEO holds the position of the most senior executive officer. Therefore, the title of a management board member is an important indicator for the degree of structural power an CEO has within the organization. Next to the title and CEO holds it is also known that the compensation of a CEO is also an important power indicator to quantify the degree of structural power a CEO has (Bebchuk, Cremers, & Peyer, 2011; Finkelstein, 1992). The reason that compensation is an important power indicator relies on the notion that the compensation power indicator is related to the ability of the board to control the CEO, because the board of directors normally determine the amount of compensation a board of directors' member receives. Therefore, if a CEO can influence the board and obtain substantial higher compensation in comparison to the other directors, it is assumed by the literature that this CEO has more structural

power within the organization. To conclude, when a CEO receives substantial more compensation relative to other directors, the CEO should be considered as a power CEO (Bebchuk et al., 2011).

The second dimension of power is 'ownership power' and relies on the notion that a CEO possibly could hold a part of the shares of the company and therefore become a shareholder. This type of ownership is affecting the agent-principal relationship which is grounded in the agency theory. A CEO with substantial shareholding in the firm does have more formal power in the organization and over the board of directors than CEOs who do not have shareholdings in the organization. In addition, CEOs who are the founder of the firm or are related to the founders of the firm may gain power through their long-term interaction with the board, where their relationship with the founders of the firm will translate to positions within the firm with substantial more power.

The third dimension of power is 'expert power', is focused on the ability of top managers on controlling and reducing uncertainty in contingent situations. In addition, managers with knowledge can become more powerful within the board of directors. For instance, if a manager has a background in a particular industry it could bring specific needed information into the organization which could be valuable. With this knowledge and expertise managers may have significant influence on the strategic choices of the organization and are often selected and hired for their advice on their expertise areas. According to Finkelstein (1992) the expertise of a managers comes with the years of experience in the specific field of interest. The tenure of a CEO is therefore an important indicator for the dimension of expert power and makes it therefore possible to quantitatively observe the degree of "expert power" a CEO could have within the organization and what the influence of this tenure is on the financial performance of firms.

The fourth and last dimension of power is 'prestige power', which is derived from the personal prestige or status a CEO has in the organization. This dimension is in most of the studies neglected because it lacks the interests of researchers to include it in their studies. The prestige power of a CEO should be considered as the reputation of the CEO towards the institutional environment or the shareholders of the organization. With a 'higher' reputation within the organization a CEO could obtain more power to persuade the board of the decisions of the CEO.

3.7 Empirical research on the topic of CEO power

The effect that CEO power has on the outcome of the financial performance of firms is a hot topic in the managerial power and strategic leadership literature. This is due to the reason that CEO power could have the potential to be a valuable asset or a risky liability (Haynes, Zattoni, Boyd, & Minichilli, 2019). According to the available literature, the effects of CEO power could be considered as a double-edged sword, because CEO power knows both benefits and risks. In the latter two paragraphs, both the benefits and the risks of CEO power are discussed. The literature of the benefits and risks of CEO power are also accessed the development of the hypothesis of this study.

3.8 Benefits of CEO power

The mainstream of literature on the topic of CEO power is written from the agency theory perspective. In contrast with the agency theory argues the stewardship theory that managers do their job and act as good as possible as stewards in employment of the shareholders to maximize the firm' ability to create wealth for the shareholders (Donaldson & Davis, 1991). According to Donaldson and Davis (1991) more powerful CEOs will be able to take timely decisions aimed at improving the financial performance of firms. Starting from the stewardship theory perspective, benefits of more powerful CEOs could be: unity of command, faster strategic response, clear line of authority and easier access to leverage and external resources (Cannella & Monroe, 1997; Finkelstein & D'Aveni, 1994). In addition, among researchers who support the way of thinking with the stewardship theory in mind claim that the power of a CEO is a prerequisite to successfully design and implement corporate strategies (Bennis & Nanus, 1985; Pfeffer, 1992).

In line with the former argumentation, Finkelstein (1992) claimed that CEO power is necessary to reduce the uncertainty within organizations. This is in line with the claim of Pfeffer and Salancik (1978) that a powerful CEO helps with managing external dependencies of organizations and can therefore better manage uncertainty among the top management and shareholders with regards to strategic decisions or the strategy of the organization (Pfeffer & Salancik, 2003).

3.9 Risk of CEO power

With the former mentioned benefits of CEO power which are derived from the stewardship theory perspective, there are also possible risks involved with a powerful CEO when considering the agency theory point of view. Agency theory-based research considers CEOs as employees who act out of self-interest to secure their position within the organization. CEOs often try to maximize their levels of compensation when dominating the organization and the board of directors. When CEOs are more powerful within an organization, they often have more access to corporate information than other members of the boards which leads to information asymmetry issues. These information asymmetry issues are an example of issues which could occur when an organization is in possession of a powerful CEO (Fama & Jensen, 1983; Jensen & Meckling, 1976). According to Eisenhardt (1989) CEOs have deviant interests than the shareholders of the firm. CEOs have personal interests, agendas and priorities within the firm which are divergent of those of the shareholders they should be representing (K. Eisenhardt, 1989). Next to this, more powerful CEOs may even worsen the performance of the organization by relaxing and parrying their obligations within the organization (Shleifer & Vishny, 1997). Furthermore, CEOs with more power within the organization may resist against change within

the organization to improve the performance of the firm, because holding on to strategies which maximize their compensation packages are more favorable for the CEOs (Grossman & Cannella, 2006; Westphal & Bednar, 2005). These actions by the CEOs are full of risk for the survivability of the firm and could lead to a vicious circle where underperformance of the firm is legitimate (Hambrick & Gregory, 1991). Consequently, the risk from the studies former mentioned could harm the whole organization. However, these risks of a powerful CEO could particularly harm the board of directors, where powerful CEOs may eliminate the effect of the human capital of other members of the board of directors and inhibit members of the board from actively contribute to strategy formulation, as well as limiting the effect of the board of directors decision making on for example the corporate strategy (Haynes & Hillman, 2010).

At last, the centralization of power within the hands of the CEO could also lead to an increase in possible problems on the more political aspect of the organization (K. M. Eisenhardt & Bourgeois, 1988). These issues could have consequences where the effectiveness of the management could decline. Where powerful CEOs could use their power in the organization to postpone possible management turnovers and therefore possibly implement entrenchment practices to maximize their personal interests (Bigley & Wiersema, 2002).

3.10 Empirical studies on the relationship between CEO power and financial firm performance

As mentioned in the former paragraphs, the power a CEO could have in an organization could be seen as a double-edged sword. The stewardship and the agency theory are the two key theories which could be used to explain the both positive and negative phenomena. In the literature these risks and benefits are studied quantitively to identify if the power of a CEO should be improved and remained or that the power of a CEO should be limited as much as possible.

Studies on the influence of CEO power on the financial performance of dates back to an early study of Boyd (1995) where the study concluded that on average CEO power is negatively associated with the performance of a firm, even when it was positively associated with firm performance when the firm is under complex and uncertain market structures. On the other hand, Daily and Johnson (1997) found mixing results in their study. In their study multiple measures of CEO power and firm performance are used to unravel the puzzle of the influence of CEO power. The two studies of Veprauskaité and Adams (2013) and Duru, Lyengar and Zampelli (2016) have obtained results that show a negative association on the effect of CEO power on the financial performance of firms. The studies found that CEO power expressed as duality as well as the tenure of a CEO have a negative effect on the financial performance of firms (Duru et al., 2016; Veprauskaité & Adams, 2013). These studies are supported by the work of Bebchuk et al. (2011) and Landier et al. (2012). In these studies it is claimed that more powerful CEOs are related with a decrease in firm value and a decrease in the financial performance of firms (Bebchuk et al., 2011; Landier, Sauvagnat, Sraer, & Thesmar, 2012).

However, not all studies reported negative outcomes on the relationship among CEO power and the financial performance of firms. The former mentioned study of Qiao et al. (2017) have found positive results in the context of China. In this study an increase in CEO power leads to an increase in short- and long-term financial firm performance and therefore support organizations to increase the formal power an CEO should have within the organization. In addition to the study of Qiao et al. (2017) the study of Boyd (1995) the power of CEO should also have positive outcomes. CEOs with relative more power are able to make timely decisions and will adapt more quickly to changes in market conditions when they are under more pressure (Boyd, 1995).

CEO power has been a hot topic of discussing in management and corporate governance literature. According to the agency theory of Jensen and Meckling (1976) vesting more power towards CEOs of an organization, increases and further miss aligns the interests of managers and the shareholders of the firm. This statement dates back to the 20th century where studies like Jensen and Ruback (1983) and DeAngelo and Rice (1983) had claimed that an increase in power in the hands of the CEO will lead to more agency conflicts among managers and the shareholders of the firm (DeAngelo & Rice, 1983; Jensen & Ruback, 1983). If we reflect those early studies to more recent studies, it can be concluded that an increase in CEO power not solely knows negative outcomes when looking it from a financial firm performance perspective. Results on this relationship are not one-sided, but positive, negative and no significant relationships are found.

However, the influence of CEO power could also be reflected upon its influence on for instance investments, mergers and acquisitions (M&A) and leverage of firms. A study which dates back almost 20 years and is conducted by Barker and Mueller (2002) shed a light on the influence of CEO characteristics and the relation with the R&D spending of a firm. The study concluded that CEOs who are younger of age and do have more years of tenure within the company are correlated with an increase in expenditures on R&D (Barker & Mueller, 2002). This could imply the argument that over time CEO tend to apply the investments on R&D projects within their own field of interest. This could be seen as an example how powerful CEOs are influence their power throughout the channel of investment choices. Conflicting the results from this study are the results of the study by Farag and Mallin (2018) where the impact of demographic CEO characteristics is examined on the impact of corporate risk-taking in China. The researchers concluded that more tenured CEOs are less likely to take risky decisions and therefore are focusing on safe investments where the outcome is more predictable (Farag & Mallin, 2018). This study also highlights that several characteristics of a CEO could explain how their increase in power leads to several differences in decision making.

CEOs could also apply their power on situations where the company is issuing more or less leverage into the firm. As earlier mentioned in this study, the study of Munir and Li (2016) studied the relationship among CEO power and leverage of the firm. The results of their study concluded that there exists a U-shaped relationship within the relationship of CEO power and firm leverage (Munir & Li, 2018). This means that the distribution of the actual CEO power can have an effect on the financial decision making of the firm., meaning that CEO power has a two-sided effect on the amount of leverage a firm could attract. These results are in line with the study of Jiraporn et al. (2012), in this study the dominance of CEO was of interest. This resulted in the conclusion that a more powerful CEO tend to attract less leverage to the firm in order to reduce the amount of risk-taking of the firm. This is also complementing the prediction of the agency theory, which is claiming that powerful CEOs do attract less outside capital towards the firm.

At last, a CEO could also channel its power throughout situations where M&A are of relevance. The study of Brown and Sarma (2007) focused on the notion if CEO confidence does have an influence on the decision making of firms to acquire new firms within the context of the United States. Their conclusion was that the power of a CEO is of significant impact on the decision making within M&A, claiming that CEOs which are more confident are more likely to make crucial decisions when a firm is taking over another firm (Brown & Sarma, 2007). The results do support the prediction of the agency theory, that CEOs do act out of self-interest and are therefore more likely to acquire firms that do increase their yearly compensation packages.

The above discussion implies that CEO power both knows positive and negative effects on the performance of firms, even some studies reported results that CEO power does not have a significant effect on the outcome of the financial performance of firms. The ongoing discussion whether the influence of CEO power has a positive or negative effect on the financial performance of firms can be mainly explained by two main theories, which are well known in the economic, management and corporate governance literature. The agency theory and the stewardship theory are two theories who try to explain the behavior of managers (CEOs) within an organization and how the behavior of managers could have effect on the performance of firms. The agency theory is based on the notion that managers act out of self-interest and therefore are not trying to maximize the creation of wealth for the shareholders of the organization. With this misalignment between managers and shareholders agency conflicts occur which results in extra costs to mitigate these conflicts and are called agency costs. It is obvious that with these problems that shareholders are monitoring the managers and are implementing different kind of corporate governance mechanisms to lower the chance of agency conflicts to occur. On the other side, the stewardship theory is becoming more known. The stewardship theory takes on a 180-degree shift from the perspective of the agency theory. In the stewardship theory it is stated that managers (CEOs) are acting out of the best-interest for the shareholders. Managers are personally and intrinsic motivated to maximize the ability of the firm to create wealth for the shareholders. These two theories therefore take both a side of the double-edged sword discussion about the effect of CEO power on the financial performance of firms. In the remainder of this chapter the two theories are more set forth in detail.

3.11 **Agency theory**

If we go back to the year 1976, an important study of Jensen and Meckling (1976) was published. The researchers developed the important agency theory. The researchers have built their work on the basis of the research of Fama and Miller (1972). The theory has defined the agency relationship among two parties, the agent, and the principal, where the shareholder should be seen as the principle and the company's executives as the agents (Jensen & Meckling, 1976).

The researchers define an agency relationship as "*a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent.*" (P. 309) (Jensen & Meckling, 1976)

The agency view is based on the notion that in (modern) organizations, the separation of shareholder ownership (principals) and the organization's executives lead to costs which come from resolving the conflicts between the principles and the agents. These problems come from the fundamental argument that managers act out of self-interest and are personally orientated instead of acting in best interests of the shareholders of the firm (K. Eisenhardt, 1989). Due to the mismatch in interests of the principles and the agents, conflicts can occur which should be resolved. Resolving these agency problems provoke costs for the organization, these costs are constituted out of the cost of structuring contracts, monitoring costs and the losses an organization could encounter. All these costs together should be the agency costs of a conflict between the principles and the agents. These conflicts could be limited as much as possible if an organization is utilizing appropriate contracts between the principles and agents which specify the rights of each agent within the firm. However, resolving these agency problems could be complex, therefore academics propose that organizations should implement various forms of corporate governance mechanisms to limit the possibility for agency problems to occur and limited the amount of agency costs an organization encounter.

The goal of the agency theory is to attempt to explain and resolve these issues between the shareholders and executives of an organization. To connect the agency theory to the topic of this research, it is key to identify what the agency theory claims to conclude about the influence of power of an CEO (agent) on the financial performance of a firm. From an agency theory perspective, power of an agent should be limited because agents are likely to act out of self-interest which is not in every situation the best form of acting to maximize the firm' ability to create wealth for the shareholders.

3.12 **Stewardship theory**

Where the agency theory is suggesting that the function of CEO and chairperson should be separated, this is not the same situation for the stewardship theory. If the stewardship theory is taking in consideration, a 180-degree change of view should be made. In the stewardship theory it is suggested that an organization's executives (agents) are key essential and trustworthy stewards of the organization who act out of the best interest of shareholders of the organization. Therefore, monitoring of the executives should not be necessary and the executives should be trusted by the shareholders that they are acting with the best interests for the organization and that they will position the organization in a way that it maximizes its ability to create wealth for the shareholders. In addition, in the perspective of the stewardship theory executives are not acting out of self-interest and are therefore not maximizing their personal compensation (Donaldson & Davis, 1991). Therefore, the theory states that when managers are working with discretion, the managers are encouraged to work better where extensive monitoring by the board should be unnecessary. According to the researchers, managers are not solely motivated to obtain financial rewards for their work as much as possible. Managers are also motivated to achieve the best possible results for the organization, which results in maximizing the wealth of the shareholders (Donaldson & Davis, 1991). In addition, the researchers state that managers are acting with their own reputation and career in mind, implying that managers seek to act in a way that maximized the wealth creation for the shareholders. This is the opposite when considering the agency theory, where it is claimed that managers act out of self-interest, to maximize their financial packages and their formal/structural power within the organization.

Besides, if we look at the work of Fama and Jensen (1983) they argued that managers possesses valuable information about the organization and the daily operations than the independent outside directors of a board (Fama & Jensen, 1983). This argument supports the work of Donaldson and Davis (1991) who also claim that managers are not solely act out of self-interest but act out of goodwill to benefit the shareholders as much as possible. Considering this line of thinking, the stewardship theory is therefore suggesting that a lower number of independent directors should be ideal for an organization to maximizes its ability to create wealth for the shareholders. A larger amount of independent directors could lead to less valuable information and therefore could possibly hurt the decision-making efficiency of the board (Christensen et al., 2010; Donaldson & Davis, 1991).

4 Hypothesis development

4.1 Effect of CEO power on financial firm performance

In most of the literature it is stated that powerful CEOs can make a significant impact within the organization. The power a CEO has can lead to situations where CEO tend to apply their will in the organization. From a theoretical point of view, the power of a CEO can have two different outcomes, namely: from the stewardship point of view the CEO acts out of personal motivation to manage the organization in a way that it maximizes the creation of wealth of the organization in belong of the shareholders, where the CEO is focused on his or her career path and personal motivation. On the other hand, from the agency theory point of view a CEO is likely to act out of self-interest and is maximizing the potential of their position within the organization. Considering the former mentioned studies in the literature review, it would be more likely that the agency theory is depicting the reality of the population. Therefore, based on the perspective of the agency theory it would be probable that in the United Kingdom CEO power is negatively associated with the financial performance of non-financial publicly listed firms in the United Kingdom. The theory predicts that CEOs have a significant negative impact on the financial performance of the firm. Additionally, according to previous mentioned studies different CEO characteristics are negatively associated with the financial performance of firms.

To be precise, Verauskaité and Adams (2013) have found a negative relationship between the power of a CEO and the financial performance of firms. Next to this, Duru, Lyengar and Zampelli (2016) have found the same type of results, which are two examples of studies who support the agency theory point of view. To conclude, following the theoretical findings combined with the empirical findings and the Anglo-Saxon corporate governance model which applies for the United Kingdom discussed in the previous chapter. It is more likely that a CEO act out of self-interest and is focused on their compensation packages and personal well-being rather than the well-being of the shareholders. Therefore, the CEO is not maximizing the firm' ability to create wealth and maximize the wealth for shareholders, but the CEO is maximizing their own personal interests. This results in less financial performance of the firm. Therefore, for this thesis the following hypothesis is drawn:

H1.   From the agency-theory point of view, more powerful CEOs have a negative effect on the financial performance.

4.2 **Moderating effect of Board size**

As stated in the above-mentioned hypothesis, in this study we expect that the Power of a CEO is having a negative association with the financial performance of firms based on the empirical evidence considered for this study. However, the size of the board is traditionally considered as an important aspect of the board' composition. The board of directors has a relevant function to keep oversight within the organization and to monitor the CEO. The size of the board of directors is always been on a debate, whether it has a positive or a negative influence on the financial performance of the firm. According to Kiel and Nichelson (2003) the increase of members in the board of directors will equate to more monitoring of the CEO by the board (Kiel & Nicholson, 2003). These empirical results could be explained by several reasons. Larger groups tend to formulate more formal rules and processes which may conflict the personal interests of the CEO of the organization. Next to this, larger boards do have more members who are more difficult to subvert than smaller boards by the CEO.

A study by Van Essen, Otten and Carberry (2015) claim that firms with larger boards are pushing CEOs into situations where they have to accept performance-based compensation packages and therefore reduces the motivation of CEOs to act out of self-interest and design their own compensation packages.

Based on the above argumentation, it is likely that a larger board has a positive influence on the financial performance, and it is able to weaken the effect of a powerful CEO. Therefore, it is expected that more powerful boards do weaken the effect of the power of the CEO on the financial performance of firms and is the board limiting the potential negative effects which could occur with a powerful CEO.

H2: Corporate board size weakens the effect of CEO power on the financial performance.

5 Research Methods

In this chapter the study' research methods are elaborated. For the analysis of the data, univariate and multivariate analysis are used to be able to investigate the hypothesis of this study. After this, prior studies with a similar same topic are discussed, to investigate what research methods are proper for this study and how different research methods have worked out in prior research. When studying phenomena, it is key to select the right research frameworks. Studies can be done from two main perspectives namely: deductive and inductive studies. In deductive studies the researchers will start with a theory to develop the necessary hypothesis and test them, on the other hand in inductive studies the researchers will try to develop a theory based on the results of the study (Burrell & Morgan, 2019). In this study we are interested in which theory explains the phenomena within the context of the United Kingdom the best. Therefore, this study is approached from a deductive perspective where the hypothesis is drawn based on the main theories of this study. Based on the drawn hypothesis, a quantitative study is conducted where statistical calculations are used for testing the hypothesis.

5.1 Methodology

This study is not the first study that conducts research on the topic of CEO power and its relationship with the financial performance of firms. Many studies have globally conducted research on this topic, and mainly the same quantitative research methods are used for testing the hypothesis of the different studies. In this study, key articles are used to be able to design the research framework of this study. For example, Fang et al. (2020) is one of the most recent studies with the focus on the topic of the effect of CEO power on firm performance. In this study regression analysis is used to test the stated hypothesis. In addition, in this study the regression method of OLS (Ordinary Least Squares) is used to conduct the necessary statistical analysis. In line with the former mentioned study, other studies have also used the OLS regression analysis as the main technique for testing the hypothesis of their studies (Adams et al., 2005; Jiraporn, Chintrakarn, & Liu, 2011; Pucheta-Martínez & Gallego-Álvarez, 2019; Qiao et al., 2017; Tanikawa & Jung, 2019; Tien, Chen, & Chuang, 2013; Veprauskaitė & Adams, 2013). Based on these studies it can be concluded that regression analysis is the most suitable quantitative technique for testing the hypothesis of this study. Next to this, using techniques which are also utilized in previous studies improves the ability to generalize the results of this study. When studies are utilizing the same research methods, it helps researchers to compare results of studies with each other.

In the former mentioned part of this paragraph, the focus relied on how to study the relationship among CEO power and the financial performance of firms. In this study the focus relies also on the possible moderating effect of board size on the relationship of interest in this study. Based on the earlier mentioned studies it can be concluded that regression analysis is also particularly suitable for testing if board size is moderating the effect of CEO power on the financial performance of firms. For example, in a study conducted by Al-Matari et al. (2014) the moderating effect of board characteristics is studied. In this study the researchers utilized regression analysis as the research technique for testing their hypothesis (Al-Matari, Fadzil, & Al-Swidi, 2014). This is another argument supporting the usage of regression analysis for this thesis.

5.2 **Univariate analysis**

For this study the univariate analysis of the data is used for describing the data. A univariate analysis is the simplest form of analyzing research data. In this form of analysis there is no need for investigating causes or relationships. The sole purpose of this analysis is to become familiar with the data and to describe how the data is distributed. The goal of this analysis is to identify the descriptive statistics of the data set used in this study. For instance, the mean, median and measures of dispersion are obtained from a univariate data analysis. After this analysis, the outliers of the dataset are removed from the dataset, to ultimately obtain a clean dataset which can be used in the multivariate analysis to conduct the actual research among the relationships in this study.

5.3 **Multivariate analysis**

Within this research we are interested in obtaining empirical evidence about the relationship between CEO power and the financial performance of firms and how corporate board size potentially effects this relationship. In a multivariate analysis the goal is to examine the relationship between one dependent variable and two or more independent variables. In this form of analysis researchers are interested in how multiple independent variables are explaining and influencing the outcome of the dependent variable.

5.4 **Regression analysis**

The notion of CEO power and its effect on the financial firm performance is researched extensively, in almost every study the statistical method regression analysis is used to obtain the results demanded for testing the hypotheses of the studies. The goal of every study was to estimate the influence of the independent variables on the outcome of the dependent variable. In this study, the focus relies on the effect of CEO power as an independent variable and the influence of this independent variable on the financial firm performance as the dependent variable, and how the size of the board could affect this relationship. In the research of Fang et al. (2020) regression analysis is used to be able to predict the influence of the independent variables on the outcome of the dependent variables (Fang, Lee, Chung, Lee, & Wang, 2020).

As this is one of the most recent studies about CEO power and its effect on the financial performance of firms, it can be assumed that regression analysis should be a suitable statistical method for testing the hypotheses of this study. However, the key papers of this study do also conduct a regression analysis in their data analysis to obtain evidence to confirm their hypotheses (Adams et al., 2005; Qiao et al., 2017; Veprauskaitė & Adams, 2013).

5.5 OLS regression

In statistical analysis there are different types of regression analysis, where different forms of dependence techniques are combined to explore different forms of dependence relationships. Within the area of different regression techniques, the form of OLS regression is most frequently utilized within studies. The studies mentioned in the methodology paragraph all used OLS regression as the regression technique within their study to test the hypothesis. The Ordinary Least Squares (OLS) technique is most often used in situation where there is one dependent variable and one or more independent variables.

In addition, next to the OLS regression other types of regression analysis exist. Logistic and linear regression are examples of other type of regression analysis. In studies with a dependent variable which is nonmetric and dichotomous, the regression type of logistic regression is most suitable. Therefore, the logistic regression is not an option to use in this study, because the dependent variable of this study financial firm performance is measured as a metric variable and is therefore not suitable for logistic regression.

The form of linear regression can be utilized in this study, because linear regression is suitable for situations where there are one or more independent variables involved, this is the case for this study. In this study the OLS regression is applied to examine the linear effect of CEO power on the financial performance of firms, and the second analysis will investigate the second hypothesis where the influence of corporate board size is investigated. Next to this, the key papers of this study do also have applied the OLS regression on to their sample to test their hypothesis (Adams et al., 2005; Haynes et al., 2019; Jiraporn et al., 2011; Qiao et al., 2017).

According to Bryman, Bell and Harley (2018) a multivariate analysis like regression is based on a set of assumptions which have to be met before a multivariate analysis can be conducted. The first assumption which has to be met, is that the dependent and the independent variables should be measured on metric scale. In this study all the variables are metric, the variables which were not metric at the origin and are transformed to metric variables with the method of dummy variables.

The second assumption which must be met, is that the sample size of the study is of sufficient size. This is due to the reason that sample size has an influence on the statistical power of the regression analysis, therefore Bryman, Bell and Harley (2018) claim that the sample size for multiple regression should be at least 50 observations. Next to this, the researchers claim that the linearity of the variables could cause for problems in the analysis and therefore the variance of the error terms should be constant, independent and the assumption of the normality of the error term distribution should be met (E. Bell, Bryman, & Harley, 2018).

5.6 Fixed and Random effects in regression analysis

In regression analysis, many researchers implement the fixed- or random-effects models within their regression analysis. Following the literature, the fixed- and random-effects models can be applied to regression models to control for time and individual differences in studies where data of more than one unit are studied in multiple periods, this form of data is also called panel data (Andrew, Malcolm, & Kelvyn, 2018). In studies where the fixed- and random-effects models are applied, researchers try to control for the presence of omitted or unobserved time- and firm-specific heterogeneity that could possibly bias the outcomes of the OLS regression analysis estimates.

However, in studies not both models can be used to control for the effects. The fixed effects model allows the researchers to use this model in their regression analysis and allow the possibility of correlation between omitted or unobserved variables and the independent variables that are of interest in the regression analysis. However, the difference between the two models relies on the notion that in the random effects model this possibility of correlation is not allowed to occur (Andrew et al., 2018). However, the utilization of the fixed effects model does not only know positive outcomes, it also has its limitations. According to Bell, Fairbrother and Jones (2019) a disadvantage of the fixed effects model is that the model does not provide the possibility to allow the involvement of time-invariant independent variables within the regression analysis. The reason for this limitation is that the fixed effects model will remove these types of independent variables from the regression analysis. Next to this, the fixed effects model is not suitable for situations where the data of the panel data is unbalanced, according to the researchers the fixed effects model is preferred over the random effects model when the sample size of the study is relatively small (A. Bell, Fairbrother, & Jones, 2019).

According to the literature with regards to this research, different models are used in different situations. In a study conducted by Gupta et al. (2018) the fixed effects model is utilized in their regression analysis, because the model specifies the differences in the effects of each firm that are not a standard random sample and are time invariant (Gupta, Han, Nanda, & Silveri, 2018). Additionally, the study conducted by Naseem et al (2020) also have applied the fixed effects model to their regression analysis, this is due to the consequences that there sample was not a random sample and therefore they had to use the fixed effects model within their regression analysis (Naseem, Lin, Rehman, Ahmad, & Ali, 2020). Next to the study of Naseem et al. (2020) the researchers from an earlier study also included the fixed-effects within their regression, this is done to test the robustness of the GMM sample estimates, and is therefore used as a robustness check (Veprauskaitė & Adams, 2013). However, in the study conducted by Adams et al. (2005) the fixed effects model is not used, this is because of the notion that the researchers claim that the explanatory variables (measures of CEO power) do vary little over time. The researchers claim that when the fixed effects model was used in their study, it could happen that the regression may fail in detecting possible relationships, and therefore possibly neglect relationships even when they exist.

When the researchers are not sure about which type of effect model to apply, the Hausman test could be utilized to test whether the fixed- or the random-effects model is suitable to apply at the regression analysis of the study (Hou, Priem, & Goranova, 2017). The Hausman test tests whether the fixed- and the random-effects model provide the same results when they should be used in the regression analysis. If the Hausman test is showing significant results, the null hypothesis can be rejected, and the researchers should apply the fixed effects model in their regression analysis. In contrast, if the

Hausman test is not providing significant results, the null hypothesis could not be rejected, and the random effects model should be applied to the regression analysis.

To conclude, in this research the Hausman test is conducted to be sure about which models suits this research best. On the grounds of the literature mentioned in this paragraph it should be expected that the fixed-effects models should suit this study best. However, the Hausman test is conducted in order to be sure that the proper effect model is applied to the regression analysis.

5.7 **Endogeneity and multicollinearity problems**

An important assumption which must be dealt with is that there should not be multicollinearity between the different independent variables of this study. According to Daoud (2017) multicollinearity exits among independent variables when the correlation between the variables exceeds the >.85 threshold within the regression analysis (Daoud, 2017). Considering similar studies on this topic, it can be concluded that there are two ways of dealing with the possibility of endogeneity and multicollinearity problems. In studies where CEO power indexes are used, most of the studies do make use of a 1-year lag variables for dependent variables. On the other hand, in studies where CEO power variables are used separately the researchers did not address the possibility of endogeneity and multicollinearity problems.

Next to this, Bryman, Bell and Harley (2018) claim that the variance inflation factor is a suitable measure for testing if multicollinearity exists within the sample. This measure should have a score smaller than 10 to avoid issues with multicollinearity when interpretating the results of the regression analysis. For this study, a principal component analysis (PCA) is conducted to reduce the number of variables used in the regression analysis. Additionally, this PCA analysis is not only suitable to reduce the number of independent variables, it also eliminates the chance of multicollinearity in the regression analysis of this study.

In addition, possible issues with regards to endogeneity indicate the possibility of reversed causality. For this study it means that the outcome of the financial firm performance is influencing the power a CEO gets within an organization. This implies that when a firm performance well, the adjustments to an organization will be easier for a CEO because of the proper financial results of the organization, and therefore will provide the CEO with more power to support his decision making within the organization. To avoid those problems, a study conducted by Sheikh (2019) is adopted to implement a technique which mitigates this possibility of reversed causality also known as endogeneity. Sheikh (2019) suggest that to mitigate the possibility of endogeneity problems to occur that a one-year lag should be used for the dependent variable (Sheikh, 2019). In this study this means that the financial performance of year t+1 is compared with the variable of CEO power at time t as the independent variable.

5.8 **Research model**

As mentioned in the former paragraphs of this study, the hypotheses of this study are investigated with the usage of regression analysis. For this study, the OLS regressions are performed in order to collect data to ultimately confirm or reject the hypotheses of this study. For this study two separate regression models are used in the main analysis. For the first hypothesis a regression equation is constructed based on the grounds of former conducted research, in this equation the relationship among CEO power and financial firm performance is investigated. For the second hypothesis an interaction term is included within the regression equation to investigate the second and main hypothesis of this study, where the moderating effect of board size is regressed on the relationship of CEO power and financial firm performance. In prior research both CEO power index equations as individual CEO power variable equations are used. For this study, the CEO power index equations are used in the main analysis, and the individual CEO power variables regression are used as a robustness check in this study.

CEO Power and financial firm performance

In order to construct a suitable research model for this relationship, different studies are compared to construct the most suitable equations for this regression analysis. In the study from Ting, Chueh and Chang (2017) a regression analysis is conducted to investigate the effect of CEO power on the financial performance of banks in China. Their regression model suits this study because of the same type of regression analysis. To support this research model, the model from the study of Sheikh (2019) is constructed in a similar manner. In their study the focus was to explain the relationship of CEO power and corporate risk taking. A third study, conducted by Munir and Li (2016) was focused on the investigation of the effect of CEO power on the leverage of a firm for firms located in China, in their study a similar regression model is used as in the former two mentioned studies.

With the research models of the former mentioned studies, it is suitable to adopt a similar research model for this study first hypothesis. Similar as the study of Veprauskaité and Adams (2013) and Munir and Li (2016), a principal component analysis is performed before the regression analysis to reduce the number of variables within the regression analysis. This method is adopted in the regression of this study. In similar studies on this topic, regression models with individual CEO power variables are also used to test hypotheses. However, the goal of this study is to construct CEO power indexes based on the individual CEO power variables, the research model where CEO power variables are regressed separately is used as a robustness check later in this study. To conclude, the equation of the regression model for the first hypothesis is constructed as following:

$$FFP_{i,\,t+1} = \alpha + \beta_1(CEO\_PWR)_{it} + \beta_2(SIZE1)_{it} + \beta_3(LEV1)_{it} + \beta_4(Industry)_i + \beta_5(YEAR)_T + \varepsilon_{it}$$

$FFP_{i,\,t+1}$	= Financial performance of firm i in year t+1;
CEO_PWR_{it}	= CEO power of firm i in year t;
$SIZE1_{it}$	= Control variable firm size of firm i in year t;
$LEV1_{it}$	= Control variable leverage of firm i in year t;
$Industry_i$	= Control variable year dummy of firm i;
ε_{it}	= Error term of firm i in year t.

Moderating role of board size

As stated in the first regression equation, the relationship among CEO power and financial performance is investigated. However, in this study the focus is to investigate the possible moderating effect of board size on the relationship of CEO power and financial firm performance. In order to construct a regression equation to test this hypothesis, an interaction term has to be included within the regression model. The interaction between the CEO power indexes and the size of the board is included in the model to obtain data to test if board size has a significant moderating effect on the relation of CEO power and financial firm performance. For this equation, the structure of the equation from the first hypothesis remains in the second equation. However, in the second equation the size of the board is included as a variable as well as the interaction term. Hereby it can be stated that the research models of the studies as mentioned in the research model of the first hypothesis also are used as a basis to construct the regression equation of the second hypothesis. To conclude, based on the basis of the first regression equation the second regression equation is constructed as following:

$$FFP_{i,\,t+1} = \alpha + \beta_1(BoardSize)_i\ \beta_2(CEOPWR)_{it} + \beta_3(BoardSize * CEO\_PWR) + \beta_4(SIZE1)_{it} + \beta_5(LEV1)_{it} + \beta_6(Industry)_i + \beta_7(YEAR)_T + \varepsilon_{it}$$

$FFP_{i,\,t+1}$	= Financial performance of firm i in year t+1;
$BoardSize_i$	= Number of directors on the board;
CEO_PWR_{it}	= CEO power of firm i in year t;
$BoardSize * CEO\_PWR_{it}$	= Interaction board size and CEO power of firm i in year t;
$SIZE1_{it}$	= Control variable firm size of firm i in year t;
$LEV1_{it}$	= Control variable leverage of firm i in year t;
$Industry_i$	= Control variable year dummy of firm i;
ε_{it}	= Error term of firm i in year t.

5.9 **Measurement of variables**

In this paragraph the measurements of the variables of the above-mentioned regression models are discussed. First, the dependent variable of this study will be explained whereafter the independent variables of CEO power and board size will be explained. After those variables, the control variables of this study are set forward and will be described. This results in an overview of the variables in table 1 at the end of this paragraph.

Dependent variable

In this study we are interested in the influence of CEO power and board size on the dependent variable of this study: financial firm performance. As former mentioned in this study, the regression is conducted with a one-year lead lag for the dependent variable, this is conducted to avoid possible reversed causality problems. According to the key papers of this thesis, the dependent variable of financial firm performance could be measured with two types of measurements. Financial firm performance is measurable with market-based and account-based measures of financial firm performance (Adams et al., 2005; Qiao et al., 2017; Tien et al., 2013). For the accounting-based measurements the net-income, return on assets (ROA) and the return on Equity (ROE) are of interest when measuring the financial performance of firms from an accounting point of view. On the other hand, for the market-based measurement, the most common measure is Tobin's Q and is widely adopted in studies with regression analysis with regards to the financial performance of firms as their dependent variable (Adams et al., 2005; Veprauskaitė & Adams, 2013).

In this study, both accounting-based and market-based measures are used to maximize the reliability of the results of the regression analysis of this study. The return on assets (ROA), return on equity (ROE) and Tobin's Q are used as measures for the financial performance of firms as the dependent variable of this study.

Independent variables
CEO Power

For this study, there is a power index created for the construct of CEO power. In many studies as former mentioned in this research, the four dimensions of Finkelstein (1992) are used to be able to construct a measurable variable for CEO power. However, in this study not all the four dimensions are used to construct the variable for CEO power. This is in line with the study of Tang, Crossan, and Rowe (2011), who did modify the framework of Finkelstein (1992) within their study. In their study the dimension of prestige power is omitted from the framework, this is because prestige power is not a proximal measure of CEO power and therefore is not relevant for quantitative studies. Next to this, the reason for taking three of the four dimensions in account relies on the notion that the key papers of this study are also using the structural power, ownership power (Adams et al., 2005; Munir & Li, 2018; Veprauskaitė & Adams, 2013). Additionally, Qiao et al. (2017) is also incorporating the dimension of expert power measured as CEO Tenure in their study. In this study we add expert power to the study and therefore three of the four dimensions of Finkelstein (1992) are used to conduct the regression analysis. In most of the mentioned studies in this study, the method of creating a CEO power index based on a principal component analysis is used. However, other methods are also found when

comparing existing literature. For instance, the study of Han, Nanda and Silveri (2016) created a CEO power index based on seven different individual CEO power variables. When a variable does met a certain threshold, a score of one is added to the CEO power index, which creates a CEO power index which ranges from 0 to 7 with the increase of the score, the CEO power is also increasing. This method could also be used in this study, however based on the fact that in more studies the principal component analysis is conducted, therefore in this study the principal component analysis is used.

To start, the dimensions are measured in the same manner as other studies. This is done to maximize the reliability of this study, when researchers are using similar variables in their study results could be compared more safely.

The dimension of structural power is measured as the total compensation of the CEO. COMP is defined as the total cash compensation of the CEO (salary, cash bonuses and other options which result in compensation) divided by the total compensation of all the other directors in the board of the organization (Adams et al., 2005; Munir & Li, 2018; Qiao et al., 2017; Veprauskaitė & Adams, 2013). Secondly, the dimension of ownership power is measured by the shares the CEO has in the firm and therefore measures the ownership of the CEO within the organization. A higher number of shares within the organization will lead to a decrease in the power of the board and therefore increases the power of the CEO. OWN is measured as the number of shares owned by the CEO divided by the total amount of existing shares from the company. According to Qiao et al. (2017) the measurement of ownership is important to take into account when measuring the degree of power of CEO within an organization. According to the researchers the level of ownership of the CEO is a good measure to test hypothesis with regards to the stewardship theory which is one of the key theories of this study. The level of ownership the CEO has is measured by the number of shares owned. Therefore, a dummy variable is created which is adopted from previous mentioned studies. The dummy variable is given a value of "1" when the CEO owns equal or more than 3% of the total shares of the company. On the other hand, when the CEO is in possession of less than 3% of the shares, the dummy variable is given a value of "0" (Adams et al., 2005; Munir & Li, 2018; Qiao et al., 2017; Veprauskaitė & Adams, 2013).

The third measure which is utilized for measuring CEO power is the status of the CEO as founder of the firm. According to the study of Finkelstein (1992) the amount of ownership power is in relation with the personal relation of the CEO with the firm. CEOs which are one of the founders of the company are more likely to have substantial power within the company. The argumentation of Finkelstein (1992) is later supported by the study of Adams et al. (2005) which claims that CEOs who are also known as the founder of the firm, are more influential in the decision making of the firm. For the founder status of the CEO a dummy variable is created, where the value of "1" is given to CEOs which are one of the founders of the company, and the value of "0" is given to CEOs which are not known as one of the founders of the firm. The dummy variable is named as CEOs founder status (FNDR) (Adams et al., 2005; Munir & Li, 2018).

The last two indicators for CEO power are one of the most widely used variables to measure the power of the CEO within companies. In many studies as mentioned in the thesis, only one or sometimes two variables are used to measure the amount of power a CEO has in a company. The indicator of CEO Duality (DUAL) is a powerful indicator for measuring the power of a CEO. In all of the studies which are linked to this thesis, the indicator of CEO Duality is utilized to constitute a measurement for the power of the CEO. In a situation where the CEO holds both the position of CEO and the chairman of the board position, a value of "1" is given to the dummy variable. However, if the CEO is only holding the position of CEO a value of "0" is given to the dummy variable (Adams et al.,

2005; Munir & Li, 2018; Qiao et al., 2017; Veprauskaitė & Adams, 2013). The last indicator which is used in this study to measure the power of the CEO in a company is the measure of CEO Tenure (TENR). CEO tenure is measured as the amount of years a CEO holds its position as CEO within the firm. According to Qiao et al. (2017) the tenure of a CEO is a proper variable to measure the amount of expert power a CEO has within the organization. According to the literature a longer tenuring CEO has more ability to influence and dominate the board with the decision making of running the business (Veprauskaitė & Adams, 2013).

With all the mentioned indicators in this paragraph, it is possible to create a measurement for CEO power which is incorporating three of the four dimensions of Finkelstein' (1992) study. To be able to combine these separate indicators to a single measure it is necessary to apply a form variable reduction. The key papers of this thesis provide the method of Principal Component Analysis (PCA) to construct an index which is measuring the power of CEO. In this index it is most likely to occur that the amount of indicators are reduced to a single or two power indexes which take all of the indicators into account. Similar to the studies of Veprauskaite and Adams (2013), Adams et al. (2005), Munir and Li. (2016), the PCA analysis will select all component with eigenvalues which are equal ore exceeding the value of 1. The goal of the PCA analysis is to reduce the number of variables which exist within a dataset. In this study the PCA analysis is used to construct a reduced amount of CEO power variables, this is done by transforming the data set in a set of new variables which are uncorrelated.

Board size

In this study the size of the board of directors is used as a possible moderator on the relationship of CEO power and the financial performance of firms. As mentioned in the former paragraphs the relationship of CEO power and financial firm performance could be moderated by the size of the board of companies. The measurement of the board size is relatively simple, the total amount of members of the board of directors are of interest in the variable of board size. In some of the reported studies in this thesis board size is used as a control variable, this is due to the reason that it is likely that board size has a significant impact on the financial performance of the firm. Therefore, it can be concluded that the size of the board of directors is an important indicator to implement in this study and to test whether this variable weaken or strength the relationship between CEO power and financial firm performance. In all of the relevant studies mentioned in this thesis, the measurement of the board size is conducted by taking the sum of all of the board of directors members and add them up to one outcome which creates the variable of board size (Ben Barka & Legendre, 2016; Fauzi & Locke, 2012; Pucheta-Martínez & Gallego-Álvarez, 2019).

5.10 **Control variables**

For a proper regression analysis, it is besides the dependent, independent and moderator variables important to include control variables within the research model. The reason to implement these variables within the reseach model is that a research model including control variables isolates the (causal) effect of the variables of interest in this study. In this study we adopt the decision of control variables from previous studies. This is done to improve the reliability of the study and the results could be compared more precisely afterwards.

For this study, the first control variable is firm size, according to Veprauskaite and Adams (2013) this is an important measure to determine the financial performance of firms. In this study firm size is measured as the natural logarithm of the annual sales of the specific year of the firm. However, the study of Adams et al. (2005) take on a somewhat different perspective, the researchers in this study measured the firm size as the natural logarithm of the firm' total assets. For this study, the method of Veprauskaite and Adams (2013) is adopted, and the method of Adams et al. (2005) is accessed as a robustness check in the later stage of the study.

The second control variable of this study is the leverage of the firm, also with this control variable the two key articles of this study is adopted to define the measurement the amount of leverage of the firm. Next to the variable of firm size, the leverage of the firm is also an important variable to determine the performance of the firm (Veprauskaitė & Adams, 2013). In the study of Adams et al. (2005) leverage is measured as the proportion of long-term debt in relation to the total assets of the firm. On the other hand, the study of Veprauskaite and Adams (2013) did measure the leverage as the total debt of the firm divided by total assets, this measure of leverage is used as a robustness check later in the study.

The third control variable is the effect of the industry, this effect comes forward in many studies and is therefore a suitable control variable to include in this study. It is possible that an industry where the firm is operating is affecting the outcome of the financial firm performance significantly. According to the studies of Adams et al. (2005) and Veprauskaite and Adams (2013) it could occur that some industries are more volatile than others and therefore may have an influence on the financial performance of the firms of this study. Therefore, in this study dummy variables are included to control for the possible effects of different industries. In all of the key papers of this study, this control for industry effects is implemented which implies that it is important to not neglect the possible effect of industries (Adams et al., 2005; Munir & Li, 2018; Veprauskaitė & Adams, 2013). The different industry dummies are based on the NACE Rev. 2 classification which is most widely used for the classification of different industries, these classifications are included in each of the different regression analysis in this study to test the different hypothesis.

The fourth and last control variable is the year effect. According to Gupta et al. (2016) the year effect should be included in regression analysis to control for possible temporal conditions. In this study the data is collected over multiple years (5-6) years. To control for specific influences of different years and therefore to control for year effects, year dummies are included in the regression analysis.

5.11 **Robustness tests**

In this study, multiple robustness checks are conducted to improve the reliability of the results of this study. As mentioned in the paragraph of control variables, firm size and the leverage of the firm has two different measurements according to the key papers. Therefore, the measurement which is not used in the regression analysis are used as a robustness test to verify the results of the outcome of the regression analysis. Next to this, another robustness check which are used is the split sample method, in this case the sample are splitted and the split sample is tested with the same form of regression analysis. With this test the results of the first regression analysis are confirmed on the aspect of reliability. As a last robustness check the separate CEO power variables are tested in a regression analysis. In this study a PCA is used to reduce the number of variables in the regression analysis. This test is conducted to check whether the PCA analysis made a significant difference in the analysis.

5.12 **Overview of variable measurements**

Variable	Definition	References
Firm performance		
Return on Assets (ROA)	Earnings before interest and taxes / total assets	(Adams et al., 2005; Veprauskaitė & Adams, 2013)
Return on Equity (ROE)	Net income / total equity	(Veprauskaitė & Adams, 2013)
Tobin's Q	Book value debt + market value common equity / book value total assets	(Adams et al., 2005; Veprauskaitė & Adams, 2013)
CEO Power		
CEO Compensation (COMP)	Total compensation / total compensation of all directors on the board	(Munir & Li, 2018; Qiao et al., 2017; Veprauskaitė & Adams, 2013)
CEO Ownership (OWN)	Total shares owned by CEO / total shares of the firm 1 = = Holds 3% or more of total shares 0 = Holds less than 3%	(Munir & Li, 2018; Veprauskaitė & Adams, 2013)

CEO Founder status (FNDR)	1 = Founder of firm 0 = Not founder of firm	(Adams et al., 2005; Munir & Li, 2018; Veprauskaitė & Adams, 2013)
CEO Duality (DUAL)	1 = CEO and chairman of board 0 = CEO	(Munir & Li, 2018; Veprauskaitė & Adams, 2013)
CEO Tenure (TENR)	Number of years the CEO holds the position of CEO within the firm in years	(Munir & Li, 2018; Veprauskaitė & Adams, 2013)
Moderating variable		
Board size	Number of directors in the board	(Ben Barka & Legendre, 2016; Fauzi & Locke, 2012; Pucheta-Martínez & Gallego-Álvarez, 2019)
Control variables		
Firm size (FSIZE_1)	Natural logarithm of annual sales	(Haynes et al., 2019; Veprauskaitė & Adams, 2013)
Firm size (FSIZE_2)	Natural logarithm of total assets	(Adams et al., 2005; Munir & Li, 2018)
Leverage (FLEV_1)	Long-term debt / total assets	(Adams et al., 2005)
Leverage (FLEV_2)	Total debt / total assets	(Veprauskaitė & Adams, 2013)
Industry dummy	Dummy variables based on Nace Rev. 2 classifications	(Adams et al., 2005; Munir & Li, 2018; Veprauskaitė & Adams, 2013)
Year dummy	Dummy variables to control for the possible year effects	(Gupta et al., 2018)

Table 1: Measurements variables

6   Data and sample

In the chapter data and sample, the data used in this study is described and discussed. In this study the dataset of former University of Twente student Noemi van der Wal is adopted. The reason for adopting this data set is that this study is based on a similar topic. Her study was also based on a sample of UK firms and is therefore suitable for this study, based on the existing data set the variables of this study are calculated. Important to mention is that in this study the regression analysis is performed on a balanced sample, this is done with the method of list wise case deletion in the regression analysis. For the descriptive statistics in the next chapter, the whole sample as discussed in this chapter is used to familiarize the data.

6.1   Sample

In this study, the analysis of the data is specified for obtaining evidence to investigate if the stated hypothesis of this study can be confirmed. The study investigates the moderating effect of corporate board size on the relationship among CEO power and financial firm performance of publicly-listed firms in the United Kingdom. As mentioned in the introduction of this thesis, a former student of the University of Twente Noemi van der Wal has recently studied the influence of independent directors on the relationship among CEO Power and the performance of firms (Wal, 2020).

In the selection of the sample, four different criteria are used to obtain the final sample which is used in the data analysis of this study. These criteria are in line with the former mentioned studies of Veprauskaité and Adams (2013), Munir and Li (2016), Adams et al. (2005) and Jiraporn et al. (2012) who all did use similar criteria for constructing a sample for their analysis. At first, the regulated industries with financial and utility firms are excluded from the final sample. With this restriction it resulted in 169 firm being excluded from the sample. Second, the firms where no CEO was reported are also removed from the sample, this resulted in a restriction of 47 firms from the sample. For firms with a CEO reported, data of the CEO is collected from the database of BoardEx. Also, firms where the CEO was not present for the whole timeframe are removed from the sample, this could lead to cases where firms have multiple CEOs during the timeframe of the study. This could lead to conflicting results with regards on the measurement of the CEO Power dimensions, and next to this CEOs which are not in function for more than a year could not have a clear and significant effect on the financial performance of the firm.

Lastly, firms with unavailable data for both financial and CEO data are removed from the sample. For example, TUI AG did not report the required data for measuring the individual CEO power variables for multiple years, and therefore it is not possible to calculate the CEO Power variables and use these variables in the data analyses. Therefore, those type of companies are restricted from the sample, which resulted in a restriction of 15 firms from the final sample.

To conclude, based on the mentioned four criteria of selection, a total of 399 of the originally 541 firms are excluded from the sample. The final sample for this study does exist out of 142 firms which do fulfill the four criteria of selection and are therefore suitable for conducting the quantitatively analysis of this study, to investigate if the hypothesis of this study could be confirmed or rejected. In the latter displayed table, the selection steps of the final sample are displayed in table 2

Sample selection criteria		
Sample size	Reason of exclusion	Number of excluded firms
Initial sample size	All firms listed on London Stock Exchange	
541	Financial or utility firms	169
372	Firms without CEOs	47
325	Firms where CEO is not in position during the sample period	168
157	Firms with missing data	15
142	Final sample size	

Table 2: Selection criteria for sample

To apply industry effect dummies in the OLS regression of this study to control for industry specific effects, it is required to insert the firms into different industries. For this study, the widely used NACE Rev. 2 classifications are used to structure the firms of this study. With the data set of Wal (2020) the method of grouping classification groups together is adopted from her study. Grouping industry classification together will increase the number of firms in the classification groups after reclassification. The 13 existing classifications are reclassified into 5 different categories. These categories are: "manufacturing industry", "real estate and construction industry", "commodity, retail and transport industry", "communication and administrative industry", and "other industries". These classification categories are adopted from the study of Wal (2020). In the latter displayed table 3 the reclassification of the categories is displayed with the number of firms per category mentioned.

Industries			
NACE Rev. 2 classification	Number of firms before reclassification	Reclassification category	Number of firms per category after reclassification
C – Manufacturing	51	Manufacturing industry	51
F – Construction	6	Real estate and construction industry	
L – Real estate activities	14		20
B – Mining and quarrying	13	Commodity, retail, and transport industry	34
G – Wholesale and retail trade	11		
H – Transportation and storage	10		
J – Information and communication	13	Communication and administrative industry	23
N – Administrative and support service activities	10		
I – Accommodation and food service activities	4	Other industries	14
M – Professional, scientific and technical services	4		
O – Public administration	1		
R – Arts, entertainment and recreation	1		
S – Other service activities	4		
Total	142		142

Table 3: Industry reclassification

What can be observed from table 3 is that the manufacturing industry category holds most of the firms within the sample, the manufacturing industry will therefore be used in this study as a robustness check. In the robustness check there is conducted a regression analysis on the sub-sample of manufacturing industry firms to check the validity of the results from the main regression analysis of this study.

7 Results

In the chapter results, the outcomes of the data analyses are described and discussed. The chapter is structured as follows: the chapter starts with an exploration of the data set with the descriptive statistics displayed. After the descriptive statistics the conducted principal component analysis is discussed, after this the bivariate analysis with the correlation matrix is displayed and discussed. At last, the results of the conducted OLS regression in the main analysis is discussed and the results are interpreted and reflected onto prior research. Additionally, after the discussion of the results of the main OLS regression the results of the robustness check are discussed to conclude if the results of the main OLS regression holds when adjustments will be introduced within the OLS regression. For each of the regression analysis the VIF scores are considered in order to check for multicollinearity problems, these scores did not exceeded the threshold of 5, therefore the results of the VIF scores are not displayed for every regression analysis due to the lack of relevance to mention in the main body of this study.

7.1 Outliers

In studies with quantitative analysis, outliers might be present in the data sample which is used for the analysis. These outliers might influence the outcomes of the study and must therefore be identified before conducting the multivariate data analysis, which in this was performing an OLS regression analysis (Duru et al., 2016; Qiao et al., 2017), in order to control for the effect on the outliers in the dataset, boxplots were initially assessed to observe the distribution of the data at first hand. With the outcomes of the boxplots, the data is winsorized were needed. With the process of winsorization the score of a data point in the data set is set with a specific value, this is done to ultimately "robustify" the mean of the data sample at specific variables.

In most of the situations the values below the 1st percentile of the data sample are set to the value of the 1st percentile, this is also done for the data points which lie above the 99th percentile is set to the value of the 99th percentile. This step of identifying and correcting for outliers is called winsorization and it helps studies to distribute the data of a variable more normal. A variable should be distributed somehow normal to suit the OLS regression analysis of this study. In this study, the maximum applied winsorization was 3 percent on the dependent variable of financial firm performance (ROA, ROE, RET and Tobins'Q) to be able to construct the variable in a way that de distribution of the data becomes relatively normal distributed, which then fulfills the required for regression analysis. After the steps of winsorization, the descriptive statistics of this study are calculated as displayed in table 4.

7.2 Descriptive statistics

In the latter mentioned table 4, the descriptive statistics that are used in this study are described and interpreted. These descriptive statistics are calculated after the removal of the outliers in the data sample as former mentioned, however it is important to mention that in the OLS regression case are deleted listwise, which results in less cases used in the regression analysis then reported in table 2 with the descriptive statistics. The final data sample is constructed out of data of 142 unique firms over a period from 2013 to 2018.

If we first look at the financial performance variables of this study, it can be seen that on average firms in the United Kingdom have a return on assets of 8.9%. this ROA measure is exactly the same as

reported in the study of Veprauskaite and Adams (2013), with regards to the return on equity and Tobin's Q the results of this study are slightly lower than the outcomes of the mentioned study, these results are supported by the work of Kyere and Ausloos (2020) which also found similar results as reported in the descriptive statistics of this study (Kyere, 2020). The evidence found in these descriptive statistics may imply that firms in the United Kingdom are not fully recovered from the financial crisis started in 2008. Next to this, if we take the studies of Adams et al. (2005) and Tien et al. (2013) in consideration, it can be concluded that on average firm in the United States report better financial performance as measured by Tobins'Q (2.01 and 2.31). These statistics could conclude that over the years firms in the United States are more overvalued than the firms of this study, which are based in the United Kingdom. If we go one step further, and take the different CEO Power variables into consideration, those variables can also be reflected against the results of the study of Veprauskaité and Adams (2013). The compensation of CEOs in the years 2013 to 2018 is more than 7 per cent higher (42,7% vs. 35,2%) than in the years 2003 to 2008 as reported in the study of Veprauskaité and Adams (2013). Which may also be an indicator that the compensation of CEOs is increased after the financial crisis and therefore could be a signal of the importance of CEOs within an organization or the power they possess with an organization to design their own higher compensation packages. In this study, a CEO in the United Kingdom holds on average in 14% of the data points 3% or more of the total shares of the firm. Which is slightly higher than the statistics mentioned in the study of Veprauskaité and Adams (2013), who reported that CEOs on average hold in 9.6% of the occasion a CEO holds 3% or more of the total shares of the company. The variable of founder status of the CEO reports in this study a score of 9%, which states that in 9% of the observations the CEO is one of the founders of the firm. This statistic is in line with the results of the study of Adams et al. (2005) which also found the result that in 9% of the occasions CEOs are the original founder of the firm they are working for. If we reflect those outcomes on the study of Munir and Li (2016) who conducted a similar study in China, the researchers reported way higher outcomes on average and reported a statistic of 44.6% of the CEOs are also the original founder of the firm. Looking at the variable of Duality, it can be concluded that this variable score substantially lower than CEOs in other countries as China as reported in the study of Munir and Li (2016). In the United Kingdom CEOs are in just 2% of the occasions both the CEO and the chairman of the board. This result could be explained by the ongoing further specification of corporate governance codes in the United Kingdom. In the last decade, the Corporate Governance Committee is trying to reduce the duality of CEOs within firms in the United Kingdom. In the United States and China, it is more common that CEOs are both CEO and the chairman of the board. This is proposed by the results of the study of Gupta et al. (2016) which claimed that on average in China in 32.9% of the occasions the CEO also holds the position of chairman in the board. However, this result is even higher in the United States where the researchers reported results of 63% of the occasions where the CEO also holds the position of chairman of the board within the firm. The low score of CEO duality in the United Kingdom could also be supported by the notion that the UK is trying to make the shift from an Anglo-Saxon type of Corporate Governance model towards a more Continental European model as proposed by Okike (2019). At last, as what can be observed from table 2 is that there some CEOs present in the sample which do have 0 years of tenure at that moment. These CEOs cases are retained in the descriptive statistics to visualize the phenomena of the United Kingdom. However, for the regression analysis these CEO cases with 0 years of tenure are excluded from the regression, because in this study a lead lag variable is used to calculate the scores of the OLS regression analysis.

One of the main variables of interest of this study is the moderating effect of board size on the relationship of this study. In the United Kingdom board are constituted on average out of 8.52 members, with a minimum board of 4 members and a maximum of 26 as reported in the results of the descriptive statistics. This is a slightly lower results as reported in the study of Veprauskaité and Adams (2013) which reported a score of 9.1 members on average in the board of firms in the United Kingdom. However, these results could be in line with each other because the difference among the two statistics is relatively small.

Variables		N	Mean	Median	STD. DEV	Minimum	Maximum
Performance							
ROA	(%)	850	0.089	0.076	0.083	-0.223	0.387
ROE	(%)	849	0.092	0.1511	0.754	-2.36	1.96
Tobins'Q		850	1.267	0.98	0.933	0.15	4.01
CEO Variables							
COMP	(%)	835	0.427	0.43	0.121	0.094	0.88
OWNS	(%)	851	0.14	0	0.345	0	1
FNDR		851	0.09	0	0.291	0	1
DUAL		851	0.02	0	0.143	0	1
TENR	Years	849	7.44	6	6.067	0	41
Moderating							
Board_Size	Number	850	8.56	8	2.312	4	26
Control Variables							
FSIZE_1	(* 1mln.)	850	4.7	0.761	14,281	0.021	18,793
FSIZE_2	(* 1mln.)	850	8.2	1.2	24,214	0.057	18,736
FLEV_1	(%)	834	0.365	0.365	0.219	0.01	1.1
FLEV_2	(%)	846	0.788	0.785	0.298	0.21	1.94

Table 4: Descriptive Statistics

At last, the control variables of the study should be discussed. In the panel of the control variables, the two firm size measurements (Total Sales and Total Assets) and the two leverage measurements are displayed. Next to these control variables, in the OLS regression analysis the industry- and year dummies are used, but those are excluded from the descriptive statistics figure displayed in this chapter. The two measurements of firm size are measured as the natural logarithm of the total assets of the firm as well as the natural logarithm of the total assets of the firm per unique year. On the other hand, the two leverage measurements are calculated by dividing the long-term debt of the firm by the total assets of the firm, and by dividing the total debt of the firm by the total assets of the firm.

Principal component analysis

As mentioned in the chapter Research Methods, the research method of principal component analysis is used to construct a power index to quantitively measure the power of the CEO within a firm. The reason for the PCA is to reduce the dimensionality of the interrelated CEO power variables within the data set. In table 3 the results of this PCA are displayed.

Correlation Matrix	COMP	OWNS	FNDR	DUAL	TENR
COMP	1	0.019	-0.182***	-0.052	-0.012
OWNS	0.019	1	0.200***	0.307***	0.206***
FNDR	-0.182***	0.200***	1	0.098***	0.296***
DUAL	-0.052	0.307***	0.098***	1	0.120***
TENR	-0.012	0.206***	0.296***	0.120***	1
Power-index weights					
CEO_PWR1	-0.215	0.670	0.636	0.606	0.635
CEO_PWR2	0.778	0.393	-0.446	0.360	-0.049
PCA Descriptives	Mean	Std. Dev	Minimum	Maximum	IQ range
CEO_PWR1	-0.0128	0.93	-1.45	3.72	0.62
CEO_PWR2	0	1	-2.83	4.12	1.09

Table 5: Results principal component analysis

As can be seen from table 5, the correlation between the five different CEO power variables is not that high, but most of the correlations are significant. This indicates that the CEO power variables are capturing different aspects of CEO power, this is in line with the results of the correlation matrix of the study from Veprauskaité and Adams (2013), who also reported correlations which are significant but not extremely high. Adopted from the study of Veprauskaité and Adams (2013), two CEO power indexes are constructed based on the outcome of the Eigenvalue scores. In this study, components with an eigenvalue greater than 1 are retained in the study, as can be observed in the appendix two components do have an Eigenvalue greater than 1, and are therefore retained in this study, this is in line with the work of Veprauskaité and Adams (2013) who also constructed two different CEO power indexes.

The first power index 'CEO_PWR1' is mainly characterized by the individual CEO power variables ownership, founder status, duality, and tenure. This is due to that the weights exceed the 0.5 threshold. The signs of the components weights are consistent with what is provided by other studies as of Veprauskaité and Adams (2013). This implies that an increase in CEO ownership, founder status, duality and tenure will lead to higher levels of CEO Power as measured with the index CEO_PWR1. For the second power index 'CEO_PWR2' the index is characterized by the compensation of CEOs. In this case the ownership of the CEO is the only variable which is exceeding the 0.5 threshold on the weighted power index. This implies that an increase in CEO compensation will lead to higher levels of CEO power measured with the CEO_PWR2 index. With these two indexes three of the four dimensions of

Finkelstein (1992) can be measured quantitively. CEO_PWR1 is measuring the dimension of 'ownership power' and 'expert power'. On the other hand, the index CEO_PWR2 is measuring the dimension of 'structural power' as proposed by Finkelstein (1992).

7.4 **Bivariate analysis**

In this paragraph the correlation matrix of the different variables is displayed. The bivariate analysis is conducted by using the Pearson's correlation matrix, which is displayed in table 6 of this paragraph. The goal of this bivariate analysis is to investigate which of the variables are correlating with each other to identify what could cause issues with the further multivariate analysis of regression. In this correlation matrix all the variables of this study including the two CEO power indexes are included in one bivariate correlation matrix. The CEO power indexes are based on the five different individual CEO power variables based on a principal component analysis and are therefore highly correlating with the individual CEO power variables, these correlations are not that relevant for this study and could therefore be neglected. At first glance, it can be overserved that the financial performance variables are not highly correlated with each other. Tobins'Q is only significant correlated with the financial performance variables RET and ROA. This observation could be explained due to the fact that there is a distinction between market-based performance measurements and account-based performance measurements.

Next to this if we take the dependent and independent variables in consideration. The CEO power indexes are not correlated with all the performance measurements, CEO_PWR1 is only significantly correlated with Tobin's Q (r=0.114**). For CEO_PWR2, we see some both positive and negative correlations but those are relatively weak because they are not significant at any level of significance. With regards to the moderating variable of this study, the size of the board is only negative significant correlated with the market-based performance indicator Tobins'Q (r=-0.133**), and both CEO power indexes (r=-0.077*) and (r=-0.259**). Both correlations between the CEO power indexes and the size of the board are significant negative correlated. This implies that an increase in the size of the board is resulting in significant less CEO power in organizations as measured with the CEO power indexes.

At last, the Pearson's correlation matrix also shows that all the control variables (FSIZE_1, FSIZE_2, FLEV_1 and FLEV_2) are all significant correlated with the first power index CEO_PWR1. All these correlations are significant and negative. This implies that CEO Power is higher in smaller organizations with less leverage, this is due to the significant correlation between the variables. On the other hand, the second power index CEO_PWR2 is only significant correlated with the FLEV_2 control variable and this correlation is positive (r=0.128**). The moderating variable Board_Size is significant correlated with Tobin's Q, FSIZE_1, FSIZE_2 and FLEV_1, the correlations are all positive. Next to this, the correlations between the FSIZE_1, FSIZE_2 and Board Size are relatively high, which could cause issues in the main regression analysis. Therefore, in the regression analysis a robustness check is conducted where the variables of firm size are excluded from the regression model to check if the results of the main regression hold when removing a high correlated variable from the model, next to this it is important to check if the results of board size are due to the high correlation of board size and firm size or that the results of the regression analysis remain after removing the firm size variable from the analysis.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.RET	1															
2. ROA	0.010	1														
3. ROE	0.041	0.067	1													
4. Tobins'Q	0.120**	0.507**	-0.020	1												
5.CEO_PWR1	-0.004	-0.014	0.013	0.114**	1											
6.CEO_PWR2	0.009	0.010	-0.030	0.039	-0.007	1										
7.COMP	0.020	0.061	-0.018	0.082*	-0.210**	0.773**	1									
8.OWNS	-0.007	-0.077*	-0.030	0.092**	0.682**	0.390**	0.004	1								
9.FNDR	-0.002	0.023	0.008	0.156**	0.633**	-0.451**	-0.186**	0.185**	1							
10.DUAL	-0.007	0.017	-0.001	0.044	0.556**	0.366**	-0.052	0.340**	0.110**	1						
11.TENR	0.005	0.103**	0.050	0.105**	0.653**	-0.058	-0.039	0.235**	0.405**	0.268**	1					
12.Board Size	-0.026	-0.060	-0.002	-0.133**	-0.077*	-0.259**	-0.259**	-0.175**	0.029	-0.015	-0.080*	1				
13.FSIZE_1	-0.042	0.071*	0.015	-0.141**	-0.258**	0.041	0.105**	-0.184**	-0.162**	-0.121**	-0.113**	0.501**	1			
14.FSIZE_2	-0.040	0.054	0.009	-0.237**	-0.146**	-0.063	-0.040	-0.158**	-0.077*	-0.041	-0.103**	0.522**	0.608**	1		
15.FLEV_1	0.022	-0.092**	-0.029	-0.169**	-0.143**	0.028	0.003	-0.103**	-0.149**	-0.006	-0.150**	0.137**	0.162**	0.250**	1	
16.FLEV_2	0.025	0.058	-0.034	-0.052	-0.139**	0.128**	0.157**	-0.019	-0.132**	-0.102**	-0.044	0.046	0.384**	0.186**	0.464**	1

Table 6: Bivariate correlation matrix

7.5 **Regression analysis**

Hypothesis 1

In the first hypothesis, it is the goal to investigate if CEO Power as measured with the CEO Power indexes does have a significant effect on the financial performance of publicly-listed firms. In table 7 the results of the first OLS regression are presented. The dependent variable of financial firm performance is measured with four different financial indicators (ROA, ROE, RET and Tobins'Q). The OLS regression analysis for hypothesis 1 is performed in four different ways. For each of the financial performance indicators, separate regressions are performed to try to find evidence which could confirm hypothesis 1 of this study. Based on the results of the regression analysis, the results of the financial indicators of ROA en Tobins'Q are mentioned in table 7. This is due to the fact that the regression analysis provided a lot of similar results which are not that relevant to display them all within the main part of this study, the remainder of the regression analysis results of hypothesis 1 are displayed in the appendix. For each of the financial performance indicators the following regression models are performed in order to obtain the results of hypothesis 1: first a regression model with only the control variables is performed, after regression models for the CEO power indexes are run with one of the indexes with both of the control variables, whereafter both of the CEO power indexes are included in a regression model with both of the control variables.

The first CEO Power index is constituted out of four different variables of CEO Power, namely: ownership, founder status, duality, and tenure. From table 7 it can be observed that there is only significant evidence found for the financial indicator Tobins'Q, this is not in line with the study of Veprauskaité and Adams (2013) where significant negative results were reported for ROA, ROE and Tobins'Q. With this result it can be stated that when CEO power is measured with CEO_PWR1 and financial firm performance is measured with Tobins'Q that an increase in CEO power will lead to significant higher financial firm performance. However, these results only hold for CEO_PWR1 and Tobins'Q. Considering ROA, it can be observed that there are no significant results reported. In table 7 it can be seen that there are performed different regression models to check if the results holds when control variables are removed from the regression models. It can be concluded based on the results of table 7 that the results of the regression analysis for hypothesis 1 remain the same when only the control variable FLEV_1 or FSIZE_1 is used within the regression model. However, a downside of this regression analysis are the results of ROA when looking at the adjusted r-squared of the model. The outcomes of the regression with financial performance indicator ROA do not explain 1 % or more of the variance, which is quite low when comparing these results with the adjusted r-squared of the Tobins'Q regression models (16-19%). The models of the financial indicators ROE and RET provide similar results as the model of ROA and are therefore displayed in the appendix of this study.

Based on the results of the OLS regression analysis models, there is not enough significant evidence to support the hypothesis that CEO Power has a significant negative effect on the financial performance of firms. In addition, the only significant evidence which is reported is that when financial firm performance is measured with the financial indicator Tobins'Q is that an increase in CEO power will lead to improved financial firm performance, which is not the results which were suspected based on the stated hypothesis. These results are therefore not in line with the expected results as formulated based on the agency theory and are also not in line with the results of the study of

Veprauskaité and Adams (2013). However, the results are in line with the results of the study of Tien et al. (2013) who also did not obtain evidence to confirm the similar hypothesis of their study.

Variable	ROA (T+1)						Tobins'Q (T+1)					
Model	1	2a	2b	3	4	5	1	2a	2b	3	4	5
CEO_PWR1		-0.033		-0.018	-0.043	-0.033		0.080**		0.122***	0.119***	0.080**
		(-0.824)		(-0.461(	(-1.103)	(-0.819)		(2.185)		(3.350)	(3.326)	(2.185)
CEO_PWR2			-0.013	-0.030	-0.013	-0.013			-0.004	-0.014	-0.006	-0.005
			(-0.334)	(-0.756)	(-0.323)	(-0.323)			(0.125)	(-0.399)	(-0.154)	(-0.152)
FSIZE_1	0.048	0.039	0.048	0.020		0.039	-0.175**	-0.153***	-0.175***	-0.168***		-0.153***
	(1.197)	(0.940)	(1.195)	(0.486)		(0.939)	(-4.795)	(-4.071)	(-4.792)	(-4.436)		(-4.068)
FLEV_1	-0.077*	-0.082*	-0.077*		-0.077*	-0.081*	-0.220***	-0.210***	-0.220***		-0.226***	-0.210***
	(-1.883)	(-1.972)	(-1.874)		(-1.726)	(-1.962)	(-5.628)	(5.929)	(5.929)		(-6.015)	(-5.619)
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	676	676	676	676	676	676	676	676	676	676	676	676
Adjusted R^2	0.005	0.004	0.004	0.001	0.003	0.003	0.190	0.189	0.189	0.165	0.176	0.193
F-Statistic	1.313	1.211	1.211	1.068	1.193	1.169	15.387***	14.085***	14.085***	10.176***	12.882***	13.443***

Note: The table presented does report standardized coefficients. In this table annual panel data is analysed for the period of 2013 to 2017
The performance of the firms are analysed at T+1. In parenthesis the t-statistics are reported, ***, ** and * show the significance at 1%, 5% and 10%

Table 7: OLS regression hypothesis 1

Hypothesis 2

In the second OLS regression, the initial regression models of the first hypothesis do remain. However, in the second hypothesis the moderating effect of board size on the relationship of CEO power and financial firm performance is investigated. In the regression models of the second hypothesis the interaction between board size and CEO power included within the regression models. These regression models are the focus of this study and are used to obtain evidence to confirm or reject the hypothesis of this study. In table 8 the results of the regression analysis are displayed, for this table the results for the financial indicators ROA and Tobins'Q as dependent variables are shown, the results of the regression models for financial indicators ROE and RET are shown in the appendix this is since repetitive results are not relevant to mention in the main body of this study. For both of the financial indicators ROA and Tobins'Q 6 different regression models are displayed, various regression models are constituted to control for the effects of different variables within the models. At first glance it can be observed that for both financial performance indicators that there is no significant evidence found that the size of the board has a significant moderating effect. These results are not that surprisingly, because the results of the regression analysis of hypothesis 1 did also report only significant results for the regression model where the financial firm performance was measured by Tobins'Q.

Based on the bivariate correlation matrix it could be stated that the control variables of firm size are highly correlated with the moderating variable of board size from this study. Therefore, there are regression models constructed with just one of the two control variables in each model. Based on this first robustness check it could be stated that the results remain the same, and that the control variable of firm size is not influencing the results due to the high correlation. Next to this, looking at the results from table 8, it can be observed that board size has an significant on the financial firm performance when performance is measured with ROA as the dependent variable, in all of the other regression models no significant effects were reported besides the significant effects of the control variables.

In comparison with the results of the regression analysis of hypothesis 1, it can be claimed that the explained variance (adjusted r-squared) of this study is relatively low for most of the financial indicators of this study. For Tobins'Q the results of the explained variance are around the 18-19%, however for the other financial performance indicators, the explained variance of the models are not higher than 1% in most of the cases. At last, to connect the results of this regression analysis to the existing literature on the influence of board size it could be stated that board size has a significant negative effect on the financial performance of firms when financial performance is measured with the variable of ROA which is in line with the work of theory Pucheta-Martinez and Galeggo-Alvarez (2019) and Busru and Shanmugasundaram (2017). However, there is no significant effect found when including the interaction term between board size and CEO power within the regression models. Based on the results of the regression analysis of hypothesis 2 there is not enough evidence provided to confirm or reject the hypothesis of this study, and therefore it cannot be concluded that board size has a significant moderating effect on the relationship of CEO power and financial firm performance.

In the next paragraph several robustness checks are discussed which are conducted to test if the results of the regression analysis for hypothesis 1 and 2 still remain when adjustments are made on the methods of analysis.

Variable	ROA (T+1)						Tobins'Q (T+1)					
Model	1	2a	2b	3	4	5	1	2a	2b	3	4	5
Board Size	-0.126*** (-2.685)	-0.121*** (-2.539)	-0.155*** (-3.040)	-0.149*** (-2.966)	-0.073* (-1.735)	-0.152** (-2.871)	0.008 (0.179)	0.001 (0.031)	-0.008 (-0.183)	-0.072 (-1.550)	-0.098** (-2.255)	-0.012 (-0.261)
CEO_PWR1		-0.104 (-0.651)		-0.030 (-0.192)	-0.115 (-0.701)	-0.066 (-0.388)		-0.114 (-0.792)		0.035 (0.244)	-0.023 (-0.157)	-0.080 (-0.541)
CEO_PWR2			0.055 (0.379)	-0.007 (-0.050)	0.018 (0.119)	0.050 (0.335)			0.174 (1.312)	0.110 (0.807)	0.164 (1.207)	0.127 (0.941)
Board Size * CEO_PWR1		0.087 (0.054)		0.023 (0.147)	0.070 (0.423)	0.047 (0.284)		0.202 (1.394)		0.093 (0.640)	0.139 (0.927)	0.165 (1.106)
Board Size * CEO_PWR2			-0.115 (0.765)	-0.065 (-0.427)	-0.052 (-0.336)	-0.107 (-0.693)			-0.189 (-1.390)	-0.149 (-1.065)	-0.203 (-1.459)	-0.141 (1.008)
FSIZE_1	0.119*** (2.479)	0.112** (2.226)	0.136*** (2.747)	0.109** (2.155)		0.128 (2.484)	-0.179*** (-4.104)	-0.151*** (-3.340)	-0.169*** (-3.766)	-0.124*** (-2.661)		-0.144*** (-3.081)
FLEV_1	-0.063 (-1.536)	-0.065 (-1.553)	-0.061 (-1.467)		-0.062 (-1.473)	-0.061 (-1.467)	-0.221*** (-5.908)	-0.206*** (-5.463)	-0.220*** (-5.858)		-0.205*** (-5.387)	-0.206*** (-5.436)
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	676	676	676	676	676	676	676	676	676	676	676	676
Adjusted R Square	0.014	0.012	0.015	0.011	0.007	0.012	0.189	0.194	0.189	0.165	0.183	0.193
F- Statistic	1.816**	1.591*	1.710**	1.472	1.325	1.510*	14.087***	12.638***	12.211***	7.671***	7.970***	11.106***

Note: The table presented does report standardized coefficients. In this table annual panel data is analysed for the period of 2013 to 2017

The performance of the firms are analysed at T+1. In parenthesis the t-statistics are reported, ***, ** and * show the significance at 1%, 5% and 10%

Table 8: OLS regression hypothesis 2

7.6 **Robustness checks**

For this study, several robustness checks are conducted to test the validity of the study with the previous conducted OLS regression analysis. For this study, first the regression is performed again with a sub-sample of the original data sample. Second, OLS regressions are performed with all the CEO power variables of this study separately. Third, the two control variables of leverage and firm size are replaced with different measures. All off these robustness checks are performed in order to test the results and the validity of this study, when the results of the robustness checks provide similar results it can be concluded that the results of the main regressions are valid for this study.

Sub-sample

To test the validity of this study, the first robustness check is conducted by selecting a sub-sample from the original data set in order to test the robustness of the results. To validate the obtained results from the main regression of this study, a sub-sample is created where only firms from the manufacturing industry are selected for the sub-sample. In the sub-sample with only manufacturing industry firms are 246 observations included from the original 676 observations from the sample. The results of the performed regression analysis on the sub-sample are presented in table 11 and 12 in the Appendix. In the main regression, hypothesis 1 is only showing significant results for the CEO_PWR1 variable when measuring financial firm performance as Tobins'Q. In the results of the regression with the sub-sample, it can be observed that CEO_PWR1 is also reporting significant positive results when measuring financial firm performance with the indicator ROA. Next to this, in model 3 of table 11 it can be seen that CEO_PWR1 and CEO_PWR2 show significant positive results, when financial performance is measured with Tobins'Q. With those results, there is a little more evidence found that an increase in CEO Power is increasing the financial performance of firms. However, these results are not confirmed by all three of the financial indicators, just on the ROA and Tobins'Q indicators some more evidence was found, but not across all of the models. Therefore, the results from the main regression will hold, because there is not enough evidence provided with the robustness check to be able to confirm hypothesis 1. Therefore, the results of the main regression will remain after performing the sub-sample robustness check for hypothesis 1.

For hypothesis 2, the sub-sample regression is providing insight in the validity of the main regression results. Observing the regression results in table 11 from appendix 2 is confirming the validity of the results of the main regression. Only for the interaction BoardSize * CEO_PWR1 the results show significant positive results. However, for all the other interactions and different financial indicators, the results remain not significant and therefore provide no clear evidence to confirm hypothesis 2 of this study.

Based on the outcomes of the regression based on the sub-sample of manufacturing industry firms, the results of the main regression remain, and the validity of this study is confirmed with the sub-sample robustness check.

CEO power variables

In this paragraph, the results of the robustness check are presented when the OLS regression is performed when the two CEO power indexes are replaced with the individual CEO power variables. The results of the OLS regression for both hypothesis 1 and hypothesis 2 are displayed in table 15 and table 16 of the appendix. Considering the results of the regressions, it can be stated that CEO Ownership and CEO Tenure show significant positive results when measuring financial firm performance with the financial indicator ROA. In addition, when measuring the financial performance of firms with the financial indicator Tobins'Q only the CEO Founder status variable is reporting significant positive results, this result was expected because the variable CEO Founder status is included in the power index CEO_PWR1 which was also reporting significant positive results when financial performance was measured with the financial indicator Tobins'Q.

Reflecting those results with the results of the main regression of this study, it can be concluded that in both regressions for hypothesis 1 there is no clear evidence to confirm the hypothesis 1 of this study. There is not sufficient clear evidence that CEO power has a significant negative effect on the financial performance of firms.

In table 14 it can be observed that for all regression with an interaction with the variable board size, only the variable CEO Compensation is reporting significant positive results when financial performance is measured with the financial indicator Tobins'Q. For all the other interactions, there is no significant effect found for the CEO Power variables. This result is in line with results of the main regression for hypothesis 2, where also no significant results were reported. The results of the robustness check with individual CEO Power variables do support the results of the main regression. In this robustness check there is also no clear evidence provided to be able to confirm both hypothesis 1 and 2 from this study.

As an extra robustness check, all the individual CEO power variables are regressed in regression models with financial performance indicators ROA and Tobins'Q. the results of these regression analysis are displayed in table 17 and 18 of the appendix. From those results it can be observed that only the individual CEO power variable of CEO tenure is reporting significant results within the ROA regression model of table 17. This is in line with the results of the main OLS regression results because there were no clear significant results reported which could confirm the hypotheses of this study.

Replacement Size and Leverage measurement

As a last robustness check for this study, the measurement of the control variables firm size and firm leverage are replaced with another variable which is measurement on a different manner. Where FSIZE_1 is measured as the natural logarithm of the annual sales from the firm. This type of measurement was adopted from the study of Veprauskaité and Adams (2013). However, as a robustness check, this measurement is replaced with the measurement for firm size as provided in the study of Adams et al. (2005) where firm size is measured as the natural logarithm of the total assets. The replacement of the firm size measurement is used in this study as the variable FSIZE_2. On the other hand, for the measurement of firm leverage. The standard measurement was the FLEV_1 as measured as the long-term debt divided by the total assets of the firm as adopted from the study of Adams et al. (2005). This variable is replaced with the measurement of the study of Veprauskaité and Adams (2013) where firm leverage is measured as the total debt divided by the total assets of the firm. This measurement is used in this study as the variable FLEV_2. With those two variable replacements the OLS regression of hypothesis 1 and 2 are performed again. The results of this OLS regression are displayed in figure 13 and 14 from the appendix. From the results it can be observed that the same type of results is reported in the OLS regression with the replacement variables FSIZE_2 and FLEV_2. With this type of results, we confirm that the validity of the main regression results holds. Additionally, this also means that there is no new evidence provided by the results to be able to confirm the hypothesis of this study, this claim reflects on both hypotheses.

With this last robustness check it could be claimed that the results of the main regression are confirmed on aspect of validity. Therefore, it could be stated that the results which are obtained in the main regression are reliable and are suitable for drawing the conclusion of this study.

8   **Conclusion**

For this study, it was the goal to investigate if the size of corporate boards does have a significant moderating effect on the relationship among CEO Power and the financial performance of publicly-listed firms in the United Kingdom. The conclusion can be drawn based upon the results of the OLS regression analysis of this study in combination with the interpretations of the results of the robustness checks. First, the conclusion and discussion of this study will be discussed. After this, the limitations of this study and recommendations for further research will be provided.

8.1 **Conclusion and discussion**

In this study, the possible moderating effect of board size on the relationship between CEO Power and financial firm performance measured by ROA, ROE, RET and Tobins'Q is studied. The first hypothesis of this study was specified on identifying the relationship among CEO Power and financial firm performance. For hypothesis 1, only the model with financial indicator Tobins'Q reported a significant result, which indicates that CEO Power measured as the index mainly characterized by ownership, founder status, duality and tenure only show a positive significant effect if financial performance is measured with the financial indicator Tobins'Q, meaning that an increase in CEO Power will lead to improved financial performance. However, in the remainder of the OLS regression models where financial performance is measured as the return on assets, the return on equity or stock returns, no significant results were found. Therefore, in this study there is no clear evidence supporting the first hypothesis of this study, resulting in the conclusion that the first hypothesis could not be confirmed. The results are also not in line with the predictions of the agency theory, which predicted a significant negative effect. For hypothesis 2, the models do not display any significant results with regards to the interactions between the board size and the two power indexes. Therefore, there is also no clear evidence found in this study that the size of the board is significantly moderating the relationship between CEO Power and the financial performance of firms. Resulting in failing to confirm the second hypothesis of this study, due to the absent of empirical significant evidence.

Furthermore, after the assessment of the different robustness checks of this study it could be stated that the results of the main regression could be confirmed on the validity and reliability of their results. The different robustness checks involved the utilization of a sub-sample regression, individual CEO Power variables analysis separately, and at last the replacement of two control variables with a different form of measurement. When making use of a sub-sample with only firms with the classification of the manufacturing industry, the results of both hypothesis from the main regression are validated. In the case of the regression with the individual CEO Power variables, only the variables of CEO Founder status, CEO Compensation and CEO Tenure do report significant results for the first hypothesis. In addition, for the individual CEO Power variables regression with the interaction term of board size there are no significant results provided. At last, the replacement of the way of measuring firm size and firm leverage provided similar results as the results from the main regression and therefore confirm the validity of the results of the main regression.

To conclude the results of this study, the central research question to this study was: "***How is CEO Power affecting the financial performance of publicly-listed firms in the United Kingdom, and how is corporate board size influencing this relationship?***" and can be answered. Firstly, the influence of CEO

power on the financial performance of firms is dependent on how financial performance is measured, but overall, we cannot clearly state that CEO Power has a significant effect on the financial performance of firms in the United Kingdom. Second, the effect of the size of the board on the relationship of CEO Power on the financial performance of firms is not significant. This holds for situations where financial performance is measured with multiple financial indicators. Therefore, we could assume that the size of the board is not as important in the United Kingdom as it has been in other countries.

8.2 Limitations and recommendation for future research

In this study, the aim was to investigate if corporate board size has a significant moderating effect on the relationship of CEO Power and financial firm performance. In this study some interesting results are obtained from the regression analysis, which are used for drawing the conclusions of this study. However, this study also contains some limitations, which could be improved in further studies on this topic. This study is focused on just three of the four dimensions of CEO Power as proposed by Finkelstein (1992). This is due to the difficulty on obtaining the necessary data for quantitively measuring the other dimension (prestige power). In a future study, the researchers could try to find a method to measure the prestige power of a CEO in order to obtain a CEO Power index based on all four of the dimensions of Finkelstein (1992). In addition, another limitation of this study is that the moderating effect is just investigated with one board characteristic while more board characteristics are available from the literature. Next to this, the results of the regression analysis did provide relatively low adjusted r-squared scores which indicates that the models of the regression analysis are not well in explaining the variance of the data. This is a limitation because a regression model with higher ability to explain the variance of the data is more valuable for researcher to base their conclusions on and use in the results of this study in future research. However, besides the possibility of including more control variables within the regression models no clear answer was found why the adjusted r-squared of this study is that low. Additionally, as former mentioned this study could have included more control variables to ultimately improve the results, therefore the results of the study based on the set of used control variables is limited. At last, this study is specified on just the United Kingdom and is therefore not easily generalizable to other countries within the European Union since every country has its own corporate governance codes and rules. This limits the results of this study to just the United Kingdom.

Despite the limitations, there are suggestions for further research after this study. Due to the lack of empirical research on the topic of CEO Power within the European context, increasing studies with this topic could help to unraffle the puzzle of the effect of CEO Power of the financial performance of firms. Lots of study on this topic is conducted in countries as China and the United States. Therefore, conducting this research in the context of another European country could be a suggestion for further research.

Next to this, researchers could also focus on the development of a framework to measure CEO Power quantitatively. In many of the assessed papers in this study do report issues with measuring CEO Power on a quantitative scale, the dimensions as proposed by Finkelstein (1992) are in some situations hard to capture.

If the focus is remained on the United Kingdom, more future research could be conducted on the moderating effect of other corporate governance mechanisms. The effect of shareholdings, compensation and for instance other board characteristics could be used in studying the moderating

effects of variables on the relationship of CEO Power on the financial performance of firms. These studies could be conducted on both the publicly listed firms, but also privately held firms could be selected for conducting a similar study. However, it could be labour intensive to collect data from all the privately held firms in a specific country. A suggestion for a future research topic could be a study on the effect of board composition on the effect of CEO Power on the financial performance of firms. At last, in most of the studies as well as this study the research method of regression analysis is used. For further research a study based on a more qualitative framework could be interesting, it could help to identify potential CEO Power aspects which are not identified yet.

Reference list

Adams, R. B., Almeida, H., & Ferreira, D. (2005). Powerful CEOs and Their Impact on Corporate Performance. *The Review of Financial Studies, 18*(4), 1403-1432. doi:10.1093/rfs/hhi030

Ahmad, S., & Omar, R. (2016). Basic corporate governance models: a systematic review. *International Journal of Law and Management, 58*(1), 73-107. doi:10.1108/IJLMA-10-2014-0057

Al-Matari, E. M., Fadzil, F. H. B., & Al-Swidi, A. (2014). *The Moderating Effect of Board Diversity on the Relationship Between Board of Directors Characteristics and Firm Performance in Oman : Empirical Study*.

Anderson, R. C., Mansi, S. A., & Reeb, D. M. (2004). Board characteristics, accounting report integrity, and the cost of debt. *Journal of Accounting and Economics, 37*(3), 315-342. doi:https://doi.org/10.1016/j.jacceco.2004.01.004

Andrew, B., Malcolm, F., & Kelvyn, J. (2018). Fixed and random effects models: making an informed choice. *Quality & Quantity*, 1-24. doi:10.1007/s11135-018-0802-x

Barker, V. L., III, & Mueller, G. C. (2002). CEO Characteristics and Firm R&D Spending. *Management Science, 48*(6), 782-801. doi:10.1287/mnsc.48.6.782.187

Bebchuk, L. A., Cremers, K. J. M., & Peyer, U. C. (2011). The CEO pay slice. *Journal of Financial Economics, 102*(1), 199-221. doi:https://doi.org/10.1016/j.jfineco.2011.05.006

Bell, A., Fairbrother, M., & Jones, K. (2019). Fixed and random effects models: making an informed choice. *Quality & Quantity, 53*(2), 1051-1074. doi:10.1007/s11135-018-0802-x

Bell, E., Bryman, A., & Harley, B. (2018). *Business research methods*: Oxford university press.

Ben Barka, H., & Legendre, F. (2016). Effect of the board of directors and the audit committee on firm performance: a panel data analysis. *Journal of Management & Governance, 21*. doi:10.1007/s10997-016-9356-2

Bennis, W. G., & Nanus, B. (1985). *Leaders : the strategies for taking charge* (1st ed. ed.). New York: Harper & Row.

Bhatt, P., & Bhatt, R. R. (2017). Corporate Governance and Firm Performance in Malaysia. *Corporate Governance International Journal of Business in Society, 17*, 00-00. doi:10.1108/CG-03-2016-0054

Bigley, G. A., & Wiersema, M. F. (2002). New CEOs and Corporate Strategic Refocusing: How Experience as Heir Apparent Influences the Use of Power. *Administrative Science Quarterly, 47*(4), 707-727.

Boyd, B. K. (1995). CEO Duality and Firm Performance: A Contingency Model. *Strategic Management Journal, 16*(4), 301-312.

Brown, R., & Sarma, N. (2007). CEO overconfidence, CEO dominance and corporate acquisitions. *Journal of Economics and Business, 59*(5), 358-379. doi:10.1016/j.jeconbus.2007.04.002

Burrell, G., & Morgan, G. (2019). *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life*.

Busru, S., & Shanmugasundaram, G. (2017). Effects of Innovation Investment on Profitability and Moderating Role of Corporate Governance: Empirical Study of Indian Listed Firms. *Indian Journal of Corporate Governance, 10*, 97-117. doi:10.1177/0974686217730938

Cannella, A. A., & Monroe, M. J. (1997). Contrasting perspectives on strategic leaders: Toward a more realistic view of top managers. *Journal of Management, 23*(3), 213-237. doi:10.1016/S0149-2063(97)90033-7

Cernat, L. (2004). The emerging European corporate governance model: Anglo-Saxon, Continental, or still the century of diversity? *Journal of European Public Policy, 11*(1), 147-166.

Christensen, J., Kent, P., & Stewart, J. (2010). Corporate Governance and Company Performance in Australia. *Australian Accounting Review, 20*(4), 372-386. doi:10.1111/j.1835-2561.2010.00108.x

Claessens, S., & Yurtoglu, B. (2013). Corporate governance in emerging markets: A survey. *Emerging Markets Review, 15*(C), 1-33. Retrieved from https://EconPapers.repec.org/RePEc:eee:ememar:v:15:y:2013:i:c:p:1-33

Daily, C. M., & Johnson, J. L. (1997). Sources of CEO Power and Firm Financial Performance: A Longitudinal Assessment. *Journal of Management, 23*(2), 97-117. doi:10.1177/014920639702300201

Daoud, J. (2017). Multicollinearity and Regression Analysis. *Journal of Physics: Conference Series, 949*, 012009. doi:10.1088/1742-6596/949/1/012009

DeAngelo, H., & Rice, E. M. (1983). Antitakeover charter amendments and stockholder wealth. *Journal of Financial Economics, 11*(1-4), 329-359. Retrieved from https://EconPapers.repec.org/RePEc:eee:jfinec:v:11:y:1983:i:1-4:p:329-359

Donaldson, L., & Davis, J. H. (1991). Stewardship Theory or Agency Theory: CEO Governance and Shareholder Returns. *Australian Journal of Management, 16*(1), 49-64. doi:10.1177/031289629101600103

Duru, A., Iyengar, R. J., & Zampelli, E. M. (2016). The dynamic relationship between CEO duality and firm performance: The moderating role of board independence. *Journal of Business Research, 69*(10), 4269-4277. doi:10.1016/j.jbusres.2016.04.001

Eisenhardt, K. (1989). Agency Theory: An Assessment and Review. *Academy of Management Review, 14*, 57-74.

Eisenhardt, K. M., & Bourgeois, L. J. (1988). Politics of Strategic Decision Making in High-Velocity Environments: Toward a Midrange Theory. *The Academy of Management Journal, 31*(4), 737-770.

Elsayed, K. (2007). Does CEO Duality Really Affect Corporate Performance? DOES CEO DUALITY REALLY AFFECT CORPORATE PERFORMANCE? *Corporate Governance: An International Review, 15*(6), 1203-1214. doi:10.1111/j.1467-8683.2007.00641.x

Fama, E., & Jensen, M. (1983). Separation of Ownership and Control. *Journal of Law and Economics, 26*(2), 301-325. Retrieved from https://EconPapers.repec.org/RePEc:ucp:jlawec:v:26:y:1983:i:2:p:301-25

Fang, H., Lee, J. S., Chung, C. P., Lee, Y. H., & Wang, W. H. (2020). Effect of CEO power and board strength on bank performance in China. *Journal of Asian Economics, 69*. doi:10.1016/j.asieco.2020.101215

Farag, H., & Mallin, C. (2018). The influence of CEO demographic characteristics on corporate risk-taking: evidence from Chinese IPOs. *European Journal of Finance, 24*(16), 1528-1551. doi:10.1080/1351847X.2016.1151454

Fauzi, F., & Locke, S. (2012). Board structure, ownership structure and firm performance: A study of New Zealand listed-firms. *Asian Academy of Management Journal of Accounting and Finance, 8*, 43-67.

Finkelstein, S. (1992). Power in Top Management Teams: Dimensions, Measurement, and Validation. *The Academy of Management Journal, 35*(3), 505-538. doi:10.2307/256485

Finkelstein, S., & D'Aveni, R. A. (1994). CEO Duality as a Double-Edged Sword: How Boards of Directors Balance Entrenchment Avoidance and Unity of Command. *The Academy of Management Journal, 37*(5), 1079-1108.

Grossman, W., & Cannella, A. A. (2006). The Impact of Strategic Persistence on Executive Compensation. *Journal of Management, 32*(2), 257-278. doi:10.1177/0149206305280105

Guest, P. M. (2009). The impact of board size on firm performance: evidence from the UK. *The European Journal of Finance, 15*(4), 385-404. doi:10.1080/13518470802466121

Gupta, V. K., Han, S., Nanda, V., & Silveri, S. (2018). When Crisis Knocks, Call a Powerful CEO (or Not): Investigating the Contingent Link Between CEO Power and Firm Performance During Industry Turmoil. *Group and Organization Management, 43*(6), 971-998. doi:10.1177/1059601116671603

Hambrick, D. C., & Gregory, D. S. F. (1991). The Seasons of a CEO's Tenure. *The Academy of Management Review, 16*(4), 719-742.

Hambrick, D. C., & Mason, P. A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *The Academy of Management Review, 9*(2), 193-206. doi:10.2307/258434

Hamori, M., & Kakarika, M. (2009). External labor market strategy and career success: CEO careers in Europe and the United States. *Human Resource Management, 48*(3), 355-378. doi:10.1002/hrm.20285

Han, S., Nanda, V. K., & Silveri, S. (2016). CEO Power and Firm Performance under Pressure. *Financial Management, 45*(2), 369-400. doi:https://doi.org/10.1111/fima.12127

Haniffa, R., & Hudaib, M. (2006). Corporate Governance Structure and Performance of Malaysian Listed Companies. *Journal of Business Finance & Accounting, 33*(7-8), 1034-1062.

Haynes, K. T., & Hillman, A. M. Y. (2010). THE EFFECT OF BOARD CAPITAL AND CEO POWER ON STRATEGIC CHANGE. *Strategic Management Journal, 31*(11), 1145-1163.

Haynes, K. T., Zattoni, A., Boyd, B. K., & Minichilli, A. (2019). Figureheads or potentates? CEO power and board oversight in the context of Sarbanes Oxley. *Corporate Governance: An International Review, 27*(6), 402-426. doi:10.1111/corg.12293

Hou, W., Priem, R. L., & Goranova, M. (2017). Does One Size Fit All? Investigating Pay–Future Performance Relationships Over the "Seasons" of CEO Tenure. *Journal of Management, 43*(3), 864-891. doi:10.1177/0149206314544744

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360. doi:https://doi.org/10.1016/0304-405X(76)90026-X

Jensen, M. C., & Ruback, R. S. (1983). The market for corporate control: The scientific evidence. *Journal of Financial Economics, 11*(1), 5-50. doi:https://doi.org/10.1016/0304-405X(83)90004-1

Jiraporn, P., Chintrakarn, P., & Liu, Y. (2011). Capital Structure, CEO Dominance, and Corporate Performance. *Journal of Financial Services Research, 42*, 1-20. doi:10.1007/s10693-011-0109-8

Kao, M.-F., Hodgkinson, I., & Jaafar, A. (2018). Ownership structure, board of directors and firm performance: evidence from Taiwan. *Corporate Governance: The international journal of business in society, 19*. doi:10.1108/CG-04-2018-0144

Kaur, R., & Singh, B. (2018). CEOs' Characteristics and Firm Performance: A Study of Indian Firms. *Indian Journal of Corporate Governance, 11*, 097468621880671. doi:10.1177/0974686218806714

Kiel, G. C., & Nicholson, G. J. (2003). Board Composition and Corporate Performance: how the Australian experience informs contrasting theories of corporate governance. *Corporate Governance, 11*(3), 189-205.

Krause, R., Withers, M., & Semadeni, M. (2016). Compromise on the Board: Investigating the Antecedents and Consequences of Lead Independent Director Appointment. *Academy of Management Journal, 60*. doi:10.5465/amj.2015.0852

Kyere, M., & Ausloos, M. (2020). Corporate governance and firms financial performance in the United Kingdom. *International Journal of Finance & Economics*. doi:10.1002/ijfe.1883

Landier, A., Sauvagnat, J., Sraer, D., & Thesmar, D. (2012). Bottom-Up Corporate Governance. *Review of Finance, 17*(1), 161-201. doi:10.1093/rof/rfs020

Munir, Q., & Li, T. (2018). Nonlinearity between CEO power and firm leverage: evidence from the threshold model. *Review of Managerial Science, 12*(3), 593-620. doi:10.1007/s11846-016-0224-x

Musa, M. A., Ismail, S. E., & Othman, S. (2008). Corporate governance and innovative leaders. *Social Responsibility Journal, 4*(1-2), 34-40. doi:10.1108/17471110810856811

Naseem, M. A., Lin, J., Rehman, R., Ahmad, M. I., & Ali, R. (2020). Does capital structure mediate the link between CEO characteristics and firm performance? *Management Decision, 58*(1), 164-181. doi:10.1108/MD-05-2018-0594

Okike, E. (2019). Corporate Governance in the United Kingdom. In (pp. 337-365).

Papadakis, V. (2006). Do CEOs shape the process of making strategic decisions? Evidence from Greece. *Management Decision, 44*, 367-394. doi:10.1108/00251740610656269

Pfeffer, J. (1992). Understanding Power in Organizations. *California Management Review, 34*(2), 29-50. doi:10.2307/41166692

Pfeffer, J., & Salancik, G. R. (2003). *The external control of organizations : a resource dependence perspective* ([New ed., with a new introd.]. ed.). Stanford, CA: Stanford Business Classics.

Pucheta-Martínez, M. C., & Gallego-Álvarez, I. (2019). Do board characteristics drive firm performance? An international perspective. *Review of Managerial Science*. doi:10.1007/s11846-019-00330-x

Qiao, P., Fung, A., Miao, J., & Fung, H.-G. (2017). Powerful Chief Executive Officers and Firm Performance: Integrating Agency and Stewardship Theory. *China & World Economy, 25*(6), 100-119. doi:10.1111/cwe.12223

Rezart, D. (2016). Corporate Governance Failure: The Case Of Enron And Parmalat. *European Scientific Journal, ESJ, 12*(16). doi:10.19044/esj.2016.v12n16p283

Sheikh, S. (2019). CEO power and corporate risk: The impact of market competition and corporate governance. *Corporate Governance: An International Review, 27*(5), 358-377.

Shleifer, A., & Vishny, R. W. (1997). A Survey of Corporate Governance. *The Journal of Finance, 52*(2), 737-783.

Tanikawa, T., & Jung, Y. (2019). CEO Power and Top Management Team Tenure Diversity: Implications for Firm Performance. *Journal of Leadership & Organizational Studies, 26*(2), 256-272. doi:10.1177/1548051818789371

Tang, J., Crossan, M., & Rowe, W. G. (2011). Dominant CEO, Deviant Strategy, and Extreme Performance: The Moderating Role of a Powerful Board. *Journal of Management Studies, 48*(7), 1479-1503. doi:https://doi.org/10.1111/j.1467-6486.2010.00985.x

Tien, C., Chen, C.-N., & Chuang, C.-M. (2013). A study of CEO power, pay structure, and firm performance. *Journal of Management & Organization, 19*(4), 424-453. doi:10.1017/jmo.2013.30

Ting, H.-I., Chueh, H., & Chang, P.-R. (2017). CEO power and its effect on performance and governance: Evidence from Chinese banks. *Emerging Markets Review, 33*, 42-61. doi:https://doi.org/10.1016/j.ememar.2017.09.005

Veprauskaitė, E., & Adams, M. (2013). Do powerful chief executives influence the financial performance of UK firms? *The British Accounting Review, 45*(3), 229-241. doi:https://doi.org/10.1016/j.bar.2013.06.004

Wal, N. A. v. d. (2020). CEO power and firm performance : the moderating role of board independence. In.

Retrieved from: http://essay.utwente.nl/80888/1/van%20der%20Wal_MA_%20BMS.pdf

Wang, G., Holmes Jr, R., Oh, I.-S., & Zhu, W. (2015). Do CEOs Matter to Firm Strategic Actions and Firm Performance? A Meta-analytic Investigation based on Upper Echelons Theory. *Personnel Psychology*. doi:10.1111/peps.12140

Westphal, J. D., & Bednar, M. K. (2005). Pluralistic Ignorance in Corporate Boards and Firms' Strategic Persistence in Response to Low Firm Performance. *Administrative Science Quarterly, 50*(2), 262-298.

Williams, R. J., Fadil, P. A., & Armstrong, R. W. (2005). Top Management Team Tenure and Corporate Illegal Activity: The Moderating Influence of Board Size. *Journal of Managerial Issues, 17*(4), 479-493. Retrieved from http://www.jstor.org/stable/40604516

Appendixes

Appendix 1: Assumptions for regression analysis
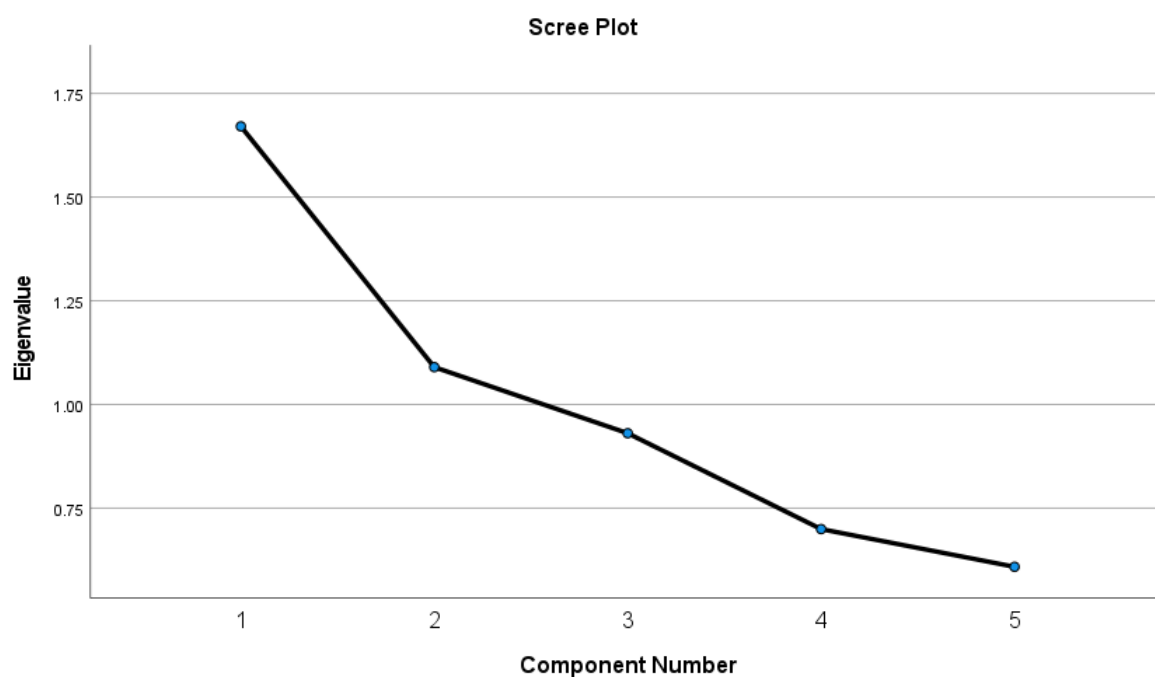
Figure 1: Eigenvalues PCA

Appendix 2: Robustness tests

Variable	ROA(T+1)				ROE(T+1)				Tobins'Q(T+1)				RET(T+1)			
	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3
CEO_PWR1		-0.033		-0.033		-0.015		(0.015)		-0.004		0.800**		0.005		0.005
		(-0.824)		(-0.819)		(-0.375)		(-0.367)		(-0.125)		(2.185)		(0.129)		(0.132)
CEO_PWR2			-0.013	-0.013			-0.023	-0.023			-0.004	-0.005			-0.005	-0.005
			(-0.334)	(-0.323)			(-0.587)	(-0.582)			(-0.125)	(-0.152)			(-0.131)	(-0.134)
FSIZE_1	0.048	0.039	0.048	0.039	0.015	0.011	0.015	0.011	-0.175***	-0.175***	-0.175***	-0.153***	0.042	0.044	0.042	0.044
	(1.197)	(0.940)	(1.195)	(0.939)	(0.381)	(0.269)	(0.380)	(0.270)	(-4.795)	(-4.792)	(-4.792)	(-4.068)	(1.038)	(1.035)	(1.036)	(1.034)
FLEV_1	-0.077*	-0.082*	-0.077*	-0.081*	-0.115***	-0.116***	-0.114***	-0.116***	-0.220***	-0.220***	-0.220***	0.210***	0.015	0.016	0.015	0.016
	(-1.883)	(-1.972)	(-1.874)	(-1.962)	(-2.804)	(-2.827)	(-2.791)	(-2.813)	(-5.937)	(-5.929)	(5.929)	(-5.619)	(0.363)	(0.377)	(0.366)	(0.380)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	676	676	676	676	676	676	676	676	676	676	676	676	676	676	676	676
Adjusted R Square	0.005	0.004	0.004	0.003	0.019	0.017	0.018	0.016	0.190	0.189	0.189	0.193	0.004	0.006	0.007	0.007
F-Statistic	1.313	1.211	1.211	1.169	2.167**	1.996**	2.013**	1.866**	15.387***	14.085***	14.085***	13.443***	7.044	6.470	6.472	5.985
DF																

*Note: The table presented does report the standardized coefficients. In this table annual panel data is analysed for the period of 2013 to 2017. The performance of the firms are analysed at T+1. In parenthesis the t-statistics are reported. ***, ** and * show the significance at 1%, 5% and 10%.*

Table 9: Financial indicators regressions hypothesis 1

Variable	ROA(T+1)				ROE(T+1)				Tobins'Q(T+1)				RET(T+1)			
	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3
BoardSize	-0.126***	-0.121***	-0.155***	-0.152***	0.038	0.041	0.036	0.039	0.008	0.001	-0.008	-0.012	0.016	0.015	0.019	0.017
	(-2.685)	(-2.539)	(-3.040)	(-2.871)	(0.804)	(0.855)	(0.703)	(0.753)	(0.179)	(0.031)	(-0.183)	(-0.261)	(-0.345)	(-0.321)	(0.357)	(0.326)
CEO_PWR1		-0.104		-0.066		-0.023		(0.030)		-0.114		-0.080		0.022		0.017
		(-0.651)		(-0.388)		(-0.146)		(-0.179)		(-0.792)		(-0.541)		(-0.135)		(0.100)
CEO_PWR2			0.055	0.050			-0.057	-0.055			0.174	0.127			-0.028	-0.026
			(0.379)	(0.335)			(-0.387)	(-0.368)			(1.312)	(0.941)			(-0.186)	(-0.170)
BoardSize X CEO_PWR1		0.087		0.047		0.004		0.012		0.202		0.165		-0.019		-0.013
		(0.054)		(0.284)		(0.025)		(0.071)		(1.394)		(1.106)		(-0.118)		(-0.080)
BoardSize X CEO_PWR2			-0.115	-0.107			0.045	0.045			-0.189	-0.141			0.029	0.026
			(0.765)	(-0.693)			(0.300)	(0.290)			(-1.390)	(-0.141)			(0.187)	(0.168)
FSIZE_1	0.119**	0.112**	0.136***	0.128	-0.006	(0.013)	-0.005	-0.012	-0.179***	-0.151***	-0.169***	-0.144***	0.033	0.034	0.032	0.033
	(2.479)	(2.226)	(2.747)	(2.484)	(-0.121)	(-0.253)	(-0.102)	(-0.227)	(-4.104)	(-3.340)	(-3.766)	(-3.081)	(-0.679)	(0.675)	(0.632)	(0.635)
FLEV_1	-0.063	-0.065	-0.059	-0.061	-0.119***	-0.122***	-0.118***	0.121***	-0.221***	-0.206***	-0.220***	-0.206***	0.013	0.013	0.013	0.013
	(-1.536)	(-1.553)	(-1.434)	(-1.467)	(-2.884)	(-2.911)	(-2.858)	(-2.881)	(-5.908)	(-5.463)	(-5.858)	(-5.436)	(-0.316)	(0.317)	(0.311)	(0.316)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	676	676	676	676	676	676	676	676	676	676	676	676	676	676	676	676
Adjusted R Square	0.014	0.012	0.15	0.012	0.018	0.016	0.016	0.013	0.189	0.194	0.189	0.193	0.006	0.008	0.008	0.01
F-Statistic	1.816**	1.591*	1.710**	1.510*	2.039**	1.760**	1.759**	1.547*	14.087***	12.638***	12.211***	11.106***	0.701	0.601	0.602	0.526

Note: The table presented does report the standardized coefficients. In this table annual panel data is analysed for the period of 2013 to 2017.
The performance of the firms are analysed at T+1. In parenthesis the t-statistics are reported. ***, ** and * show the significance at 1%, 5% and 10%.

Table 10: Financial indicators regression hypothesis 2

Variable	ROA(T+1)				ROE(T+1)				Tobins'Q(T+1)			
	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3
CEO_PWR1		0.128**		0.141**		-0.006		0.002		0.395***		0.409***
		(1.969)		(2.155)		(-0.092)		(0.036)		(7.132)		(7.389)
CEO_PWR2			-0.085	-0.100			-0.069	-0.069			-0.066	-0.112**
			(-1.364)	(-1.622)			(-1.072)	(-1.066)			(-0.427)	(-2.138)
FSIZE_1	0.164**	0.195***	0.167**	0.202***	0.142**	0.141**	0.145**	0.146**	-0.213***	-0.116**	-0.210***	-0.109*
	(2.485)	(2.893)	(2.535)	(2.998)	(2.079)	(1.995)	(2.116)	(2.058)	(-3.468)	(-2.027)	(-2.711)	(-1.905)
FLEV_1	0.333***	-0.314***	-0.340***	-0.320***	-0.106	-0.107	-0.112	-0.111	-0.342***	-0.282***	-0.348***	-0.289***
	(-5.040)	(-4.719)	(-5.142)	(-4.826)	(-1.542)	(-1.536)	(-1.624)	(-1.599)	(-5.572)	(-4.991)	(-5.798)	(-5.152)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	246	246	246	246	246	246	246	246	248	248	248	248
Adjusted R Square	0.075	0.086	0.079	0.093	0.006	0.002	0.007	0.002	0.202	0.340	0.199	0.350
F-Statistic	4.333***	4.312***	3.993***	4.128***	1.245	1.064	1.232	1.074	11.348***	19.022***	9.748***	17.465***

Note: The table presented does report the standardized coefficients. In this table annual panel data is analysed for the period of 2013 to 2017 for just manufactering firms
The performance of the firms are analysed at T+1. In parenthesis the t-statistics are reported. ***, ** and * show the significance at 1%, 5% and 10%.

Table 11: Split sample manufacturing firms

Variable	ROA(T+1)				ROE(T+1)				Tobins'Q(T+1)			
	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3
BoardSize	-0.162*	-0.231**	-0.141	-0.177*	-0.002	-0.037	-0.008	-0.036	0.260***	0.137*	0.268***	0.175**
	(-1.810)	(-2.300)	(-1.440)	(-1.798)	(-0.19)	(-0.383)	(-0.078)	(-0.345)	(2.079)	(1.550)	(1.747)	(1.776)
CEO_PWR1		0.473		0.412		0.459		0.416		1.108***		1.072***
		(1.494)		(1.287)		(1.375)		(1.221)		(5.305)		(5.154)
CEO_PWR2			0.105	0.176			-0.063	-0.028			0.033	0.209
			(0.405)	(0.664)			(-0.101)	(-0.101)			(-0.689)	(0.701)
BoardSize X CEO_PWR1		-0.338		-0.252		-0.480		-0.427		-0.754***		-0.697**
		(-1.056)		(-0.777)		(-1.424)		(-1.236)		(-3.686)		(-3.510)
BoardSize X CEO_PWR2			-0.204	-0.289			-0.006	-0.027			-0.089	-0.294
			(-0.785)	(-1.093)			(-0.097)	(-0.097)			(0.603)	(-0.906)
FSIZE_1	0.283***	0.338***	0.281***	0.340***	0.144	0.142	0.151	0.149	-0.405***	-0.266***	-0.404***	-0.266***
	(2.995)	(3.500)	(2.973)	(3.477)	(1.479)	(1.141)	(1.460)	(1.460)	(-3.280)	(-2.948)	(-3.167)	(-3.047)
FLEV_1	0.336***	-0.311***	-0.350***	-0.325***	-0.106	-0.102	-0.112	-0.107	-0.337***	-0.285***	-0.344***	-0.285***
	(-5.066)	(-4.671)	(-5.279)	(-4.866)	(-1.539)	(-1.464)	(-1.518)	(-1.518)	(-5.294)	(-3.981)	(-5.170)	(-3.841)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	246	246	246	246	246	246	246	246	248	248	248	248
Adjusted R Square	0.083	0.098	0.088	0.105	0.002	0.002	0.002	0.004	0.212	0.385	0.207	0.383
F-Statistic	4.152***	3.969***	3.611***	3.623***	1.063	1.053	1.048	1.034	10.507***	18.151***	8.184***	9.584***

Note: The table presented does report the standardized coefficients. In this table annual panel data is analysed for the period of 2013 to 2017 for just manufactering firms The performance of the firms are analysed at T+1. In parenthesis the t-statistics are reported. ***, ** and * show the significance at 1%, 5% and 10%.

Table 12: Split sample manufacturing firms with interaction terms

Variable	ROA(T+1)				ROE(T+1)				Tobins'Q(T+1)			
	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3
CEO_PWR1		-0.001		0.000		-0.010		-0.009		0.136***		0.137***
		(-0.033)		(-0.012)		(-0.249)		(-0.246)		(3.840)		(3.851)
CEO_PWR2			-0.053	-0.053			-0.007	-0.007			-0.025	-0.028
			(-1.338)	(-1.336)			(-0.188)	(-0.184)			(-0.698)	(-0.766)
FSIZE_2	-0.008	-0.008	-0.012	-0.012	0.064	0.062	0.063	0.062	-0.220***	-0.202***	-0.222***	-0.204***
	(-0.208)	(-0.210)	(-0.302)	(-0.301)	(1.615)	(1.567)	(1.597)	(1.549)	(-6.014)	(-5.514)	(-6.046)	(-5.552)
FLEV_2	0.158***	0.158***	0.166	0.166***	-0.166***	-0.168***	-0.165***	-0.166***	-0.031	-0.014	-0.027	-0.009
	(3.710)	(3.679)	(3.856)	(3.826)	(-3.917)	(-3.917)	(-3.856)	(-3.856)	(-0.780)	(-0.343)	(-0.681)	(-0.238)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	676	676	676	676	676	676	676	676	676	676	676	676
Adjusted R Square	0.020	0.018	0.021	0.019	0.030	0.029	0.029	0.027	0.162	0.178	0.161	0.178
F-Statistic	2.248**	2.057**	2.212**	2.039**	2.937***	2.694***	2.692***	2.486***	13.014***	13.401***	11.961***	12.408***

Note: The table presented does report the standardized coefficients. In this table annual panel data is analysed for the period of 2013 to 2017. The performance of the firms are analysed at T+1. In parenthesis the t-statistics are reported. ***, ** and * show the significance at 1%, 5% and 10%.

Table 13: FSIZE_2 and FLEV_2 measures

Variable	ROA(T+1)				ROE(T+1)				Tobins'Q(T+1)			
	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3
BoardSize	-0.114**	-0.113**	-0.145***	-0.144***	-0.013	-0.013	-0.016	-0.016	-0.026	-0.023	-0.049	-0.044
	(-2.528)	(-2.496)		(-2.967)	(-0.293)	(-0.285)	(-0.342)	(-0.327)	(-0.617)	(-0.563)	(-1.100)	(-0.974)
CEO_PWR1		-0.056		-0.027		-0.028		-0.027		0.020		0.050
		(-0.366)		(-0.171)		(-0.184)		(-0.171)		(0.140)		(0.350)
CEO_PWR2			-0.031	-0.036			-0.014	-0.015			0.120	0.069
			(-0.212)	(-0.239)			(-0.097)	(-0.102)			(0.888)	(0.501)
BoardSize X CEO_PWR1		0.057		0.027		0.019		0.018		0.121		0.088
		(0.368)		(0.169)		(0.125)		(0.114)		(0.861)		(0.607)
BoardSize X CEO_PWR2			-0.059	-0.053			0.003	0.005			-0.164	-0.110
			(-0.397)	(-0.348)			(0.020)	(-0.102)			(-1.189)	(-0.785)
FSIZE_2	0.054	0.054	0.066	0.065	0.071	0.070	0.072	0.071	-0.206***	-0.187***	-0.194***	-0.178***
	(1.160)	(1.158)	(1.389)	(1.375)	(1.525)	(1.489)	(1.517)	(1.481)	(-4.775)	(-4.335)	(-4.419)	(-4.063)
FLEV_2	0.160***	0.154***	0.165***	0.165***	-0.167***	-0.168***	-0.165***	-0.166***	-0.032	-0.014	-0.028	-0.011
	(3.630)	(3.596)	(3.864)	(3.828)	(-3.922)	(-3.920)	(-3.848)	(-3.845)	(-0.802)	(-0.367)	(-0.714)	(-0.272)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	676	676	676	676	676	676	676	676	676	676	676	676
Adjusted R Square	0.027	0.025	0.031	0.028	0.029	0.026	0.026	0.023	0.161	0.177	0.161	0.177
F-Statistic	2.609***	2.240***	2.576***	2.249***	2.696***	2.310***	2.310***	2.020***	11.950***	11.552***	10.405***	10.192***

Note: The table presented does report the standardized coefficients. In this table annual panel data is analysed for the period of 2013 to 2017. The performance of the firms are analysed at T+1. In parenthesis the t-statistics are reported. ***, ** and * show the significance at 1%, 5% and 10%.

Table 14: FSIZE_2 and FLEV_2 with interaction term

Variable	ROA(T+1)				ROE(T+1)				Tobins'Q(T+1)			
	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3
COMP		0.040		0.054		0.020		0.031		0.035		0.060
		(0.998)		(1.334)		(0.500)		(0.766)		(0.934)		(1.574)
OWNS			-0.131***	-0.133***			-0.059	-0.061			0.003	0.000
			(-3.004)	(-3.058)			(-1.357)	(-1.388)			(0.061)	(-0.004)
FNDR			-0.005	0.005			0.054	0.060			0.107***	0.118***
			(-0.126)	(0.105)			(1.233)	(1.347)			(2.621)	(2.856)
DUAL			0.047	0.017			0.007	0.007			0.039	0.039
			(0.395)	(0.402)			(0.157)	(0.162)			(0.953)	(0.962)
TENR			0.127***	0.129***			-0.008	-0.007			0.009	0.011
			(2.722)	(2.761)			(-0.175)	(-0.154)			(0.200)	(0.246)
FSIZE_1	0.048	0.045	0.033	0.030	0.015	0.014	0.008	0.006	-0.186***	-0.189***	-0.167***	-0.171***
	(1.197)	(1.108)	(0.809)	(0.719)	(0.381)	(0.336)	(0.192)	(0.139)	(-4.910)	(-4.971)	(-4.292)	(-4.391)
FLEV_1	-0.077*	-0.076*	-0.068	-0.064	-0.115***	-0.114***	-0.113***	-0.110***	-0.125***	-0.123***	-0.107***	-0.102***
	(-1.883)	(-1.839)	(-1.615)	(-1.514)	(-2.804)	(-2.777)	(-2.681)	(-2.614)	(-3.231)	(-3.189)	(-2.715)	(-2.596)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	676	676	676	676	676	676	676	676	676	676	676	676
Adjusted R square	0.005	0.005	0.022	0.023	0.019	0.018	0.018	0.017	0.123	0.123	0.132	0.134
F statistic	1.313	1.287	1.999**	1.987**	2.167**	2.005**	1.801**	1.724**	9.629***	8.898***	7.871***	7.550***

Note: The table presented does report the standardized coefficients. In this table annual panel data is analysed for the period of 2013 to 2017. The performance of the firms are analysed at T+1. In parenthesis the t-statistics are reported. ***, ** and * show the significance at 1%, 5% and 10%.

Table 15: CEO Power variables replacement

Variable	ROA(T+1)				ROE(T+1)				Tobins'Q(T+1)			
	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3
BoardSize	-0.126***	0.039	-0.103	0.099	0.038	-0.079	0.045	-0.070	0.008	0.172	-0.023	0.182
	(-2.685)	(0.308)	(-1.506)	(0.738)	(0.804)	(-0.635)	(0.655)	(-0.517)	(0.179)	(1.512)	(-0.369)	(1.495)
COMP		0.186		0.240*		-0.112		-0.115				0.249**
		(1.377)		(1.764)		(-0.831)		(-0.837)		(1.542)		(2.007)
OWNS			-0.269	-0.305			-0.209	-0.184			0.065	0.030
			(-1.221)	(-1.379)			(-0.939)	(-0.824)			(0.323)	(0.147)
FNDR			0.121	0.142			-0.150	-0.140			0.068	0.093
			(0.843)	(0.972)			(-1.036)	(-0.951)			(0.515)	(0.703)
DUAL			0.343	0.351			0.380	0.361			-0.219	-0.215
			(1.319)	(1.347)			(1.447)	(1.374)			(-0.923)	(-0.904)
TENR			0.174**	0.178			0.042	0.042			0.014	0.019
			(2.205)	(2.257)			(0.524)	(0.529)			(0.200)	(0.269)
COMP X BoardSize		-0.223		-0.269*		0.180		0.180		-0.219		-0.268*
		(-1.421)		(-1.711)		(1.145)		(1.132)		(-1.536)		(-1.865)
OWNS X BoardSize			0.128	0.166			0.166	0.139			-0.055	-0.018
			(0.570)	(0.735)			(0.732)	(0.609)			(-0.269)	(-0.088)
FNDR X BoardSize			-0.109	-0.125			0.214	0.205			0.035	0.015
			(-0.752)	(-0.855)			(1.386)				(0.263)	(-0.110)
DUAL X BoardSize			-0.333	-0.342			-0.394	-0.375			0.264	0.258
			(-1.259)	(-1.292)			(-1.477)	(-1.404)			(1.093)	(1.068)
TENR X BoardSize			-0.062	-0.060			0.042	-0.084			0.004	0.006
			(-0.698)	(-0.669)			(-0.902)	(-0.934)			(0.048)	(0.077)
FSIZE_1	0.119**	0.127**	0.118**	0.125**	-0.006	-0.024	-0.004	-0.022	-0.179***	-0.173***	-0.146***	-0.142***
	(2.479)	(2.527)	(2.399)	(2.447)	(-0.121)	(-0.477)	(-0.075)	(-0.418)	(-4.104)	(-3.801)	(-3.260)	(-3.045)
FLEV_1	-0.063	-0.064	-0.054	-0.054	-0.119***	-0.118***	-0.117***	-0.116***	-0.221***	-0.222***	-0.195***	-0.194***
	(-1.536)	(-1.558)	(-1.279)	(-1.269)	(-2.884)	(-2.867)	(-2.729)	(-2.705)	(-5.908)	(5.934)	(5.042)	(-5.029)
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	676	676	676	676	676	676	676	676	676	676	676	676
Adjusted R square	0.014	0.014	0.33	0.035	0.018	0.018	0.017	0.017	0.189	0.189	0.195	0.198
F statistic	1.816**	1.701**	2.152***	2.101***	2.039**	1.890**	1.588**	1.528*	14.087***	12.255***	9.191***	8.565***

*Note: The table presented does report the standardized coefficients. In this table annual panel data is analysed for the period of 2013 to 2017. The performance of the firms are analysed at T+1. In parenthesis the t-statistics are reported. ***, ** and * show the significance at 1%, 5% and 10%*

Table 16: CEO Power variables replacement with interaction terms

Variable	ROA(T+1)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
BoardSize	-0.126***	0.039	-0.138***	-0.130*	-0.123***	-0.091	0.099
	(-2.685)	(0.308)	(-2.880)	(-2.591)	(-2.612)	(1.353)	(0.738)
COMP		0.186					0.240*
		(1.377)					(1.764)
OWNS			-0.213				-0.305
			(-1.063)				(-1.379)
FNDR				0.094			0.142
				(0.676)			(0.972)
DUAL					0.275		0.351
					(1.113)		(1.347)
TENR						0.158**	0.178
						(2.181)	(2.257)
COMP X BoardSize		-0.223					-0.269*
		(-1.421)					(-1.711)
OWNS X BoardSize			0.114				0.166
			(0.575)				(0.735)
FNDR X BoardSize				-0.052			-0.125
				(-0.371)			(-0.855)
DUAL X BoardSize					-0.263		-0.342
					(-1.065)		(-1.292)
TENR X BoardSize						-0.076	-0.060
						(-0.891)	(-0.669)
FSIZE_1	0.119**	0.127**	0.100**	0.130**	0.124**	0.132***	0.125**
	(2.479)	(2.527)	(2.058)	(2.645)	(2.553)	(2.736)	(2.447)
FLEV_1	-0.063	-0.064	-0.072*	-0.056	-0.068	-0.042	-0.054
	(-1.536)	(-1.558)	(-1.746)	(-1.332)	(-1.637)	(-1.014)	(-1.269)
Year dummies	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES
N	676	676	676	676	676	676	676
Adjusted R square	0.014	0.014	0.021	0.013	0.013	0.022	0.035
F statistic	1.816**	1.701**	2.038**	1.652*	1.646*	2.100**	2.101***

Table 17: ROA CEO Variables seperately

Variable	Tobins'Q(T+1)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
BoardSize	0.008	0.172	0.006	-0.021	0.000	0.012	0.182
	(0.179)	(1.512)	(0.135)	(-0.457)	(0.008)	(0.200)	(1.495)
COMP		0.196					0.249**
		(1.542)					(2.007)
OWNS			-0.043				0.030
			(-0.233)				(0.147)
FNDR				0.079			0.093
				(0.626)			(0.703)
DUAL					-0.195		-0.215
					(-0.872)		(-0.904)
TENR						0.086	0.019
						(1.312)	(0.269)
COMP X BoardSize		-0.219					-0.268*
		(-1.536)					(-1.865)
OWNS X BoardSize			0.092				-0.018
			(0.508)				(-0.088)
FNDR X BoardSize				0.040			0.015
				(0.311)			(-0.110)
DUAL X BoardSize					0.259		0.258
					(1.160)		(1.068)
TENR X BoardSize						-0.017	0.006
						(-0.222)	(0.077)
FSIZE_1	-0.179***	-0.173***	-0.169***	-0.151***	-0.172***	-0.168***	-0.142***
	(-4.104)	(-3.801)	(-3.819)	(-3.413)	(-3.930)	(-3.828)	(-3.045)
FLEV_1	-0.221***	-0.222***	-0.218***	-0.199***	-0.219***	-0.207***	-0.194***
	(-5.908)	(5.934)	(-5.799)	(-5.253)	(-5.840)	(-5.441)	(-5.029)
Year dummies	YES	YES	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES	YES	YES
N	676	676	676	676	676	676	676
Adjusted R square	0.189	0.189	0.189	0.199	0.192	0.191	0.198
F statistic	14.087***	12.255***	12.217***	12.950***	12.427***	12.405***	8.565***

Table 18: Tobins'Q CEO variables seperately