

The Relationship between Corporate Sustainability Performance and Corporate Financial Performance:

Examining the moderating role of CEO characteristics of the top wealthiest European corporations in revenue.

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Abstract

This study investigates the relationship between corporate sustainability performance and corporate financial performance, in addition, it examines the moderating effect of individual characteristics of CEOs on the relationship between corporate sustainability performance and corporate financial performance for 77 wealthiest European corporations in revenue for a time span between 2009 and 2019. This study initially used the cross-section analysis for each of the years to study the CSP-CFP relationship, and then, the fixed effects model was used in the panel data analysis to investigate each of the CSP-CFP relationship and the moderating effect of each of CEOs characteristic namely: Overconfidence, Education, Tenure and Reputation on the CSP-CFP relationship. In the cross-sectional analysis, no significant relationship has been found between corporate sustainability performance and corporate financial performance. Likewise, in the fixed effects model, no significant evidence of correlation has been found. More importantly, this study did not find any evidence of a moderating role of CEOs' characteristics on the relationship between corporate sustainability performance and corporate. This study added new insight into the CSP-CFP relationship by focusing on the moderating role of individual characteristics separately instead of organizational characteristics that were studied intensively in the literature. This study paves the way for exploring more individual characteristics that may be moderating the CSP-CFR relationship.

Keywords: Corporate sustainability performance, Market-based, Accounting-based-Market to book value, Tobin's Q, Overconfidence, Tenure, Education, Reputation.

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1. Introduction

The concept of sustainability has gained great importance from the 1980s to the present day (Mukherjee et al., 2016). Brundtland Commission has defined sustainability as development that meets the needs of the present, taking into account that this process does not affect the capacity of future generations to meet their needs (Giovannoni & Fabietti 2013). The maturity and crystallization of this concept was not a coincidence, but rather it is because of the awareness that humanity has reached a point of a large number of environmental disasters Srivastava et al., (2018) such as hurricanes and global warming issue, as well as, economic disasters such as credit crises and bankruptcy cases. As a result, it became imperative for companies to adopt sustainable strategies, and looking at the corporates 'long-term plans became one of the corporate's priorities beside looking at the profitability. In order to achieve the level of success in its business in the long run and avoid losses (Haessler 2020).

The importance of corporate sustainability attributes to being an effective tool for developing and raising the status of companies in the market as well as preserving the interests of stakeholders, as sustainable companies that are distinctive in their ethical and strategic standards in front of other companies (Soroka & Mazurek 2014).

Stakeholders' demand companies make their sustainable reports public (Rudyanto & Siregar, 2018). Kadłubek (2015) states that the failure to adhere to the principles of environmental responsibility can hurt a company's image. The degree of sustainability performance has become the first criterion of interest for stakeholders and investors (Ionica et al., 2020). From the perspective of investors and stakeholders, publishing sustainability reports may raise the credibility and reputation of the company (Ionica et al., 2020). On the other hand, studies indicate that corporate sustainability reports may carry with them more difficulties. For instance, Reddy (2010) indicates that compliance with sustainability reports by companies may incur high costs for companies and this will also affect the company's financial performance, while others look at the fact that these procedures may increase financial performance (Ameer & Othman, 2012). Thus, financial performance has received particularly great attention concerning corporate sustainability. Therefore, this research will investigate the relationship between corporate sustainability performance and corporate financial performance in more depth.

Although the relationship between corporate sustainability performance (CSP) and corporate financial performance (CFP) has been studied before, the results are still contradictory. On the one hand, Weber et al., (2014) concluded that corporate sustainability performance has a positive effect on financial performance. On the other hand, others revealed a negative correlation (Jha, & Rangarajan, 2020; Brammer et al., 2006). Interestingly, few studies did not find any relationship between CSP and

CFP (Soana, 2009). These contradictory results discovered by several studies may be attributed to many reasons as explained by Davidson & Worrell, (1990), they explained that these discrepancies in results could be due to poor performance of financial performance indicators, for example, or because of the use of several questionable indicators to measure the corporate sustainability performance. From this point, these contradictions gave rise to academic research on factors that might be interfering with the relationship.

Previous literature has revealed many factors that moderate the relationship between corporate sustainability performance and corporate financial performance. For instance, Xie et al., (2017) showed how market factors such as customer satisfaction positively mediate the relationship between corporate sustainability performance and corporate financial performance in both China and Vietnam. Despite this, Doh & Guay (2006) demonstrated that despite the evidence that market factors have mediated positively this relationship, but there are many differences between these two countries, which have been a major reason for proving that market factors also play an important role in contradicting the results.

Other organizational-level factors that have been recognized to contribute to the impact of CSP on CFP are boards of directors' characteristics. Boards of directors have received great attention in the literature, many studies have proven the direct impact on both corporate social responsibility and corporate financial performance. The Board of directors is an important factor in shaping the environment and creating a good path for companies to operate. The role of the board of directors' characteristics on the relationship between corporate sustainability and financial performance has been also been examined. Most of these studies yielded contradictory results. Gamhewage et al., (2018) demonstrated how the board size and managerial ownership had a positive effect on the relationship between corporate sustainability and a firm's financial performance. Kabir & Minh (2017) explained in their study how corporate governance elements strengthened the relationship between CSR and CFP, they noted that no all-board characteristics had this positive effect on CFP.

In general, most of the previous studies examining the moderating effects of the board of directors' characteristics focused on organizational level variables. The most common factors used were gender, nationality, and the size of the board of directors. For example, (Galbreath 2018; Uyar et al., 2020) find that firms whose board composition has a high percentage of women are associated with more CSR activities. However, the results are still contradictory. The negative impact of corporate board characteristics has been documented in the literature. For instance, Bennedsen et al., (2008) demonstrated that the higher number of directors on the board leads to more agency problems within

the board, and creates conflicts between members of the board of directors that may lead to a decision that is not in favour of companies' profits or shareholders' interests.

Exploring organizational level factors has not brought a clear understanding of the relationship between CSP and CFP. A new avenue of research on CSR and CFP is addressing the moderating role of individual-level factors, the role of CEO in particular, which has been lacking before. CEO has an impact on the strategic decision-making process in the broader context, (Papadakis & Barwise 2002), thus it opens an opportunity for a potential influence of CEO characteristics on the relationship between CSR and CFP. Accordingly, this study aims to contribute to the existing literature by examining individual-level factors, namely CEOs characteristics, which may also moderate the relationship between CSP and CFP. To my knowledge, a few studies theorize on how CEO's characteristics affect CSF or CFP separately. However, economic research on the moderating effect of CEOs characteristics has been extremely scarce, with only Javed et al., (2019) making a step to analyze the moderating effect of responsible CEO leadership on the CSR-CFP relationship.

CEOs have been recognized to be important figures influencing firms' activities. CEO is the highest authority and decision in the company responsible for its management. Allen (1974) shows how the CEO has a powerful and high authority that may override sometimes the authority of the board of directors. Even if the CEO is appointed by the board, the essential tasks remain within the reach of the CEO. Adams et al. (2005) elaborate on how the financial performance of companies changes to the extent that the CEO enjoys some characteristics. The financial performance increases as the authority of the CEO increases. Adams et al. (2005) concluded in their study that the CEOs are the essence of the decision-making process and therefore the performance of companies varies according to their power and decision making.

On the other hand, chief executives' officers may act as individual decision-makers, they may act in selfish behaviours to achieve their interests represented by the highest level of profit, Jensen & Meckling (1976), for instance, or to get a high rating from other companies. Thus, acting in this way may create a dispute conflict with those of shareholders. In this regard, executives can be opposed to joining any sustainable practices because it may harm their investment. Oh, et al., (2016) shows that CEO characteristics have negatively impacted engagement in CSR. Despite, the abundance of research on the relationship between CSP and CFP, the role of the CEO's characteristics on the relationship between CSP and CFP.

The aforementioned facts indicate that certain CEO characteristics have the potential to moderate the relationship between CSR and CFP. Literature overview indicates that such specific CEO

characteristics as CEO's reputation, overconfidence, education, and tenure have an effect on a firm's activities that are relevant for CSR and CFP. For instance, CEO's overconfidence has been widely studied with both positive and negative effects discovered. Overconfidence has been found to negatively influence a firm's performance due to biased decision making and inappropriate and opportunistic acts, low level of information disclosure (Malmendier & Tate 2005).

However, positive effects of CEO overconfidence relate to the "signalling value" of overconfidence, a notion that is grounded in psychological research (Tenney et al., 2008). Positive consequences of overconfidence include strong persuasive power (Smith et al., 2017; von Hippel et al., 2011), and a source of determination and commitment which are valued in markets with strong competition. Moreover, Khan et al., (2020) revealed how the CEO tuner has been found to negatively influence the corporate social performance of nonfinancial Chinese firms. Furthermore, companies with a high CSR performance are found to be correlated with the CEOs reaching the Master's educational level (Huang, 2013).

While CEO's reputation, overconfidence, education, and tenure are accepted as factors influencing firm activities such as CSR, and different aspects of firm performance, a comprehensive model on the role of these factors in the CSR-CFP relationship has not been discussed in the literature before. Thus, this thesis will strive to fill this gap by asking the following question: *What is the moderating role of such CEO characteristics as CEO's overconfidence, education, tenure, and reputation on the relationship between corporate sustainability performance and corporate financial performance?*

To answer the research question, a quantitative methodology will be used to analyze the moderating role of such CEO characteristics on the relationship between corporate sustainability performance and corporate financial performance for 77 wealthiest European corporations in revenue for the period 2009 to 2019. The dependent variables in this study are both market to book value MTBV and Tobin's Q, previous studies were using different indicators for firm financial performance, either market-based indicators or accounting-based indicators, but in general, the previous literature was focusing more on accounting-based indicators such as return on assets and return on equity. Because of that, this study will be distinguished by focusing on two measures of the market-based indicators to measure the financial performance of these European companies in order to contribute to the literature and to make the finding of this research more comparable with previous literature. The main independent variable is namely, ESG score which represents the corporate sustainability performance, while the moderators are CEO's characteristics namely: Overconfidence, Education, Tenure and

Reputation. The individual characteristics of a CEO are those relating to CEO's education, experience, reputation, goodwill, etc (Li et al 2020).

This study contributes to the academic literature in the following ways. First, this study shows the moderating role of individual CEOs' characteristics on the relationship between corporate sustainability performance and corporate financial performance. Previous studies focused on CEO power or concept of cognitive CEOs or CEO power concepts which comprise various characteristics of CEOs. In this study, we break down these concepts and examine the individual characteristics separately. Second, this study adds to the existing literature the influence of individual factors instead of organizational factors, which can give more insight into the nature of the relationship between corporate sustainability performance and corporate financial performance. Third, this study will add new insight to the CSP-CFP relationship by examining the individual characteristics such as educational background, tenure, overconfidence, and reputation which is very scarce in the literature, contrary to most previous literature, which were mostly limited to the demographic characteristics of the CEOs such as age, origin, and gender. Fourth, previous studies on financial performance were focusing intensively on accounting-based indicators in measuring financial performance such as return on assets and return on equity. Therefore, this study will contribute to the literature through its focus only on market-based measures instead of accounting measures by using two market measures such as (Tobin's Q) and market to book value (MTBV).

The remainder of this research is organized as follows: in the next chapter, chapter 2, both the theoretical framework and hypotheses development were reviewed. Chapter 3 shows the sample that was studied, the variables used, the method of measuring the variables, and the sources of data collection. Chapter 4 displayed the method of analyzing the data and presents the OLS assumptions, besides reporting the results, while chapter 5 ends with the conclusion and discussions along with providing the research limitations and some future recommendations for the upcoming studies.

2. Theoretical framework

2.1 Corporate sustainability performance and financial performance

Many theories on sustainable corporate responsibility have emerged, which in turn carried an explanation of the importance of engaging in sustainability practices. The most important of these theories that were explained in this study are the stakeholder theory, agency, and legitimacy theory (Frynas, 2016). Each of these theories provides an explanation of the companies 'motives for engaging in sustainable activities and how the practices can have a direct or indirect impact on financial performance.

2.1.1 Stakeholder theory

Companies seek to achieve their ultimate goal, which is to reach the largest profit margin (Hategan et al., 2018). In order to be able to achieve the highest profits, corporates must improve their reputation and image in front of stakeholders and meet their demands (Hategan et al., 2018). These benefits that the corporations reach are derived from the stakeholder theory. This theory indicates that corporations should take responsibility to a variety of stakeholders (Laplume et al., 2008). Simmons, (2009) notes that from the perspective of stakeholder theory, it should be the duty of organizations to take adequate responsibility and meet the needs of stakeholders on a large scale, in addition to striving to meet the needs of local communities and the environment.

The new thinking of this theory is based on a conditional link between achieving a high-profit margin, which is sought by shareholders, and meeting the needs of stakeholders. In other words, it is not possible to consider and pursue the profit goals of shareholders without directly linking them to taking vigorous and serious responsibilities towards stakeholders because meeting the needs of stakeholders will positively affect the financial performance of companies (Gangone et al., 2014). Taking social responsibilities into account may create a positive environment and attract the attention of stakeholders Camilleri (2016) and may increase customer confidence, which in turn reflects on the company's financial performance, Orlitzky et al. (2003), and creates a competitive advantage for it (Camilleri, 2016).

The basic essence of this theory, according to Freeman (2004), is the attempt to create value for stakeholders, as it is the key to improving and developing companies' performance. Freeman (2004) emphasizes, based on the stakeholder's theory, that commitment to sustainable responsibilities may improve the relationship between the company's management and stakeholders, which will ultimately lead to improved financial performance. All in all, the stakeholder theory advises companies' owners to take

their responsibilities into account to meet the needs of a wider stakeholder in order to achieve high financial performance (Kabir et al., 2021).

2.1.2 Legitimacy theory

Legitimacy theory approach to corporate sustainability suggests that companies may be motivated to engage in sustainable responsibilities in order to protect their legitimacy and to preserve their good reputation and confidence in front of stakeholders Deegan et al., (2002) which will create a suitable atmosphere for investment in these companies by investors and stakeholders because investors value this information (Frynas et al., 2016;), which in turn, can contribute them in the valuation of the company (Schadewitz et el., 2010). Although legitimizing and gaining confidence are among the most important goals of this theory, however, there are other goals. According to Mousa, et al. (2015), companies aim to demonstrate the importance of their legitimacy in front of governments as well, as they are committed to the stipulated regulations, in addition to obtaining a competitive advantage in front of their corporate counterparts, which will positively affect the company's performance.

2.1.3 Agency theory

Agency theory reflects the difference and conflict between company owners and shareholders. From the point of view of this theory and according to Jensen et al. (1976), taking social responsibilities into consideration may be a reason for companies to incur additional costs, and in turn, these costs will be borne by the shareholders, which in turn will lead to wasting the wealth of those shareholders in the company, which will ultimately end in a competitive disadvantage and low financial performance. On the other hand, Jones (1995) believes the opposite of what this theory has brought, as the agency costs that the agency theory talks about may decrease if companies dealt transparently and ethically with the stakeholders, because they may be the reason for creating competitive advantages by gaining a good reputation from the owners.

2.1.4 The controversy of empirical results

For fifty years, research is still ongoing on the nature of the relationship between corporate sustainability performance and corporate financial performance. Despite the abundance of the studies, the results are still contradictory. As was illustrated above, people who are expecting a positive relationship between corporate sustainability performance and financial performance are the supporters of stakeholder theory. While the people who are expecting the negative relationship, are the advocates of agency theory. Empirical testing of the relationship between CSP and CFP also revealed uncertain results. Some of the studies stipulate positive association, while others reported a negative one, with a smaller number of

researchers inferring that there is no relationship between corporate sustainability performance and corporate financial performance.

Regarding the negative results, Jha et al., (2020) found a negative relationship between the corporates' sustainability performance at their environmental, social, and governmental levels, and the financial performance of a group of Indian companies. Taylor et al. (2007) concluded that there is a negative relationship between both profitability and liquidity and triple bottom line dimensions reporting of a group of companies in Japan and America. Likewise, Brammer et al. (2006) confirmed the same negative results when studying a group of British companies, he proved the decrease in stock return as the score of social performance increases.

On the contrary, Fujii et al. (2013) confirmed a significant relationship between firms' environmental performance represented by CO2 emissions reduction and firm's financial performance represented by return on assets. He concluded that return on assets increases once the environmental performance increase. Likewise, Kapoor et al., (2010) found a positive relationship between several indicators of financial performance and sustainability performance. They confirmed that both profitability and firm's growth increase with sustainability performance increases.

Researchers have attributed these discrepancies to many reasons. One possible explanation relates to the way the different researchers operationalize the concepts of CSP and CFP. Galant et al. (2017) showed that CFP can be measured by using different indicators from market-based measures or accounting-based measures and perceptual measures.

While others relied on the variety of indicators of CSR or CSP, as they are used interchangeably in this research (Orlitzky et al., 2003; Grewatsch, et al., 2017) determined the four different forms of corporate social responsibility or corporate sustainable performance, these forms include corporate reputation, the amount of disclosure of the firm's sustainable performance, perceptual measures, and visible measures. From this point, these contradictions gave rise to academic research on moderators that might be affecting the relationship between CSP and CFP.

In general, many researchers agree that moderators play an important role in influencing and determining the direction of the relationship between these two variables. According to Grewatsch et al. (2017), moderators that may influence the relationship between CSP and CFP are distinguished into two groups, external and internal. The most common external factors that have been recognized to moderate the relationship between CSP and CFP and CFP include cultural factors, market forces, quality of institutions. While the internal factors that moderate the relationship include firm size, firm age, innovation capacity, managerial characteristics.

2.2 Factors moderating the relationship between CSP and CFP

2.2.1 External factors

The moderating effect of cultural factors has been recorded in previous studies. National cultures are among the primary drivers of companies with regard to their sustainable commitments (O'Donovan, 2002). O'Donovan (2002) argues that the compatibility between beliefs, customs, values, and corporate social responsibility may make these cultural values more legitimate. As a result, the more legitimate companies' are, the better reputation these companies will gain from stakeholders.

Many researchers find that the sustainable activities that companies conduct may be attributed to the cultural values associated with the country (Miska et al., 2018). Countries that are full of complex cultural values may have goals completely different from the goals of other countries that do not possess multiple cultural values. The evidence for this was found by Parsa et al. (2016), as they showed that the sustainability behavior of some Chinese companies is completely different from the behavior of Western companies. On the other hand, countries that involve similar cultural practices, become more active and will gain a high financial return (Newman et al., 1996).

Although the influence of culture and its dimensions has been included in many studies as a mediator in the relationship between corporate sustainability and financial performance, the results are also contradictory. In general, culture is a subjective concept, and it is difficult to know its impact because it is different across countries as well as within the same country (Peterson & Søndergaard, 2014). Overall, it is difficult to discover the relationship between corporate sustainability and financial performance by including cultural aspects. Therefore, other factors can be interfering with this relationship.

Market forces were discovered to be those factors. The moderating effect of the market environment has been recorded in several studies. For instance, customer satisfaction has been found to positively mediate the relationship between CSR and CFP in China and Vietnam (Xie et al., 2017). Significant differences have been discovered even between these two countries, which strengthens the argument that such market factors as market development or even institutional environment (Doh & Guay, 2006) might be the reason for heterogeneity in the results. Moreover, the difference in such market development factors as local investment, production, employment, and tax revenues and such institutional factors as public and private regulations, the presence of nongovernmental organizations that monitor corporate behavior, norms regarding appropriate corporate behavior, corruption, and opportunism Campbell (2007) have been found to contribute to the differences in the effect of CSR on CFP in developed counties when compared to developing ones (Wang et al., 2015). Moreover, conditions of environmentally sensitive industries have been found to facilitate the extraction of benefits for financial performance from CSR activities (Lin et al., 2015).

2.2.2 Internal factors

The next level of factors that have been studied to affect the relationship in question is firm-specific factors. The most discussed ones are firm size, firm age, and the degree of innovation. The size of the company is one of the most important factors studied as an average of the relationship between the two variables. Where Yu et al. (2001) study proved that the size of small companies negatively affects the relationship between corporate sustainability and financial performance since small companies have sufficient capacity to implement and carry sustainable responsibilities in the face of environmental challenges they may face (Yu et al., 2001). On the contrary, Aguinis et al. (2012) assume that the larger the company, the greater the firm's capacity, and the greater the company's resources to assume more social responsibilities.

The age of the company is an important factor in influencing the strength of the relationship. Wang & Bansal, (2012) found a negative impact of company age on the relationship between corporate sustainability and financial performance. The younger the company's age, the greater the company's lack of information, expertise, and financial resources. The third of these factors is the percentage of innovation that the company enjoys. Hull & Rothenberg (2008) confirmed that corporate social performance positively affects financial performance within companies that are less innovative compared to their counterparts that enjoy a high rate of innovation. Another type of internal factors are the managerial characteristics, research for which has been lacking. Managerial characteristics, more specifically, the characteristics of the executive director, are at the center of the discussion in this thesis as they may contribute to the impact of CSP on CFP.

2.2.3 CEO Importance

The CEO is the supreme authority, the prominent leader, and the decision-maker in the organization or company he heads. Executives are the holders of power within companies and have the centrality of decision-making as they define the tasks and powers of the board of directors and employees (Busenbark et al., 2016). The importance of the CEO is increasing and the need for a competent executive is increasing day by day. The reason for this is the increasing demands of customers, investors, and stakeholders on the one hand, and the intensification of competition in recent times, on the other hand, Hong et al., (2002). Therefore, the CEO's power is seen as an effective strategic tool. Hence, the selection of executives is the key to the company's success (Kesner et al., 1994).

In general, despite the diversity of the responsibilities of CEOs among companies, the goals that CEOs aim at may vary, as some of them may seek to develop their company and raise its organizational level and cooperate with all stakeholders strategically and effectively, and some prefer accumulating their wealth. (Boal et al., 2000).

In general, many scientists considered that the CEO characteristics are the cornerstone and the main factor affecting the company's decisions (Altarawneh et al., 2020). On the one hand, since the centralization of the decision is in the hands of the manager, the manager may take decisions that are in the interest of the stakeholders and investors, which makes the stakeholders evaluate this company with a good reputation and confidence (Maak, 2007). On the other hand, CEOs may act to implement their decisions in their personal interest in utter selfishness. In other words, they may stay far from taking into account the harm that they can cause to stakeholders, which in turn will have negative consequences for their companies.

According to Smith & Badger (2007), socially responsible activities are costly and need more thought because they are also risky activities, and in this regard, possess some characteristics by CEOs may be a key driver in creating an innovative development environment in their companies, De Visser & Faems (2015), which in turn may be an important factor in avoiding these risks and reduce any costs that the company will incur when taking socially responsible activities.

2.2.4 The impact of CEO's characteristics on firm outcomes

The importance of individual characteristics of CEOs has been recorded in the behavioral literature. In fact, many researchers consider the personal characteristics of the manager to be the first factor influencing the decision-making process. For example, Aguinis et al. (2012) confirmed that managers' transparency and their ethical behaviors in their companies may have a positive impact on the relationship between corporate sustainability and financial performance.

Kim & Statman (2012) explain that some managers often work for the benefit of stakeholders in relation to the sustainable activities of their companies and that their companies' outperform financially those companies that do not take into account controlling of their activities in response to the demand of shareholders and stakeholders. On the other hand, Jensen & Mickling (1976) have another point of view, they see that since the centralization of the crucial decisions is in the hands of the executive directors, their decisions may not be in the interest of the stakeholders and investors, and their decisions may conflict with the decisions of the board of directors, for example, due to the fact that some CEO's may act in their own

interest to achieve the highest profit margin. In this case, the expectation of poor reputation from investors will arise, which might affect their financial performance negatively.

Since the centrality of decision-making is in the hands of the executive heads, the behavior of the executive heads can be supportive and act as a catalyst for any action that is in the interest of the investors and to the benefit of organizational capabilities. In addition, their strategies can influence the behavior of employees in processing the sustainable activities, which in turn, might affect the relationship between corporate sustainability performance and corporate financial performance (Waldman et al., 2008).

Cooperating (transformational) leaders may have an important role in affecting financial performance. According to Bass et al., (1994), a cooperating leader creates a state of balance between the demands of his organization on the one hand, and the demands of stakeholders' on the other hand. This type of cooperation may create enthusiasm for employees and subordinates, and thus, according to Waldman et al., (2008), this type of cooperation will bring the company a good reputation from the stakeholders which will end up improving financial performance in the long run.

Previous research on the moderating effect of CEO characteristics focused on CEO's power and cognitive CEO both being concepts that comprise many characteristics. According to Lee (2021), cognitive executives are characterized by their ability to comprehensively use knowledge, both implicit and practical, to reach their stated company goals. Lee (2021) explains in his study that cognitive executives positively moderate the relationship between corporate financial performance and corporate sustainability performance. Lee explains the fact that cognitive executives possess the power to advance their companies and to implement corporate social responsibilities (Li et al 2016).

On the other hand, regarding CEO power, Haynes, & Hillman, (2010) explains that CEO power indicates the authority and ability of managers to implement their decisions and will within their companies. Finkelstein 1994 shows that CEO power can take many forms, for example, the duplication of the CEO or the entrenchment of the CEO, both of which may negatively affect the performance of companies by reducing the effectiveness of the board of directors (Finkelstein, & D'Aveni, 1994).

In practice, Javeed & Lefen (2019) demonstrated how the more power the CEO has, the more positive his moderating role will be on the relationship between corporate financial performance and sustainable corporate performance. Likewise, Velte, (2019) demonstrated the existence of a positive moderating effect of the CEO's power represented by several dimensions such as the term of CEO and CEO ownership on the relationship between corporate financial performance and corporate social responsibility by adopting a set of theories during his studies, such as stakeholder theory and higher-order theory, as the

power of the CEO has been demonstrated in his ability to meet the demands of stakeholders, which has positively affected the relationship between CSP and CFP.

To sum up, the aforementioned facts indicate that some characteristics of the CEO may be able to moderate the relationship between CSP and CFP. Therefore, the following paragraphs break down concepts of CEO power and cognitive CEO into individual characteristics of CEO education, CEO tenure, CEO overconfidence, and CEO reputation and examine develop hypotheses on their moderating effects on the relationship between CSP and CFP.

2.3 Hypotheses development

2.3.1 Corporate sustainable performance and corporate financial performance

This study relies on the stakeholder theory and legitimacy theory mentioned in the abovementioned sections and is consistent with previous studies that suggested a positive association between corporate sustainability performance and financial performance.

Regarding the stakeholder theory, Yoon et al. (2018) confirm that the involvement of companies and institutions involvement within a sustainable and organized environment compatible with stakeholders may raise the reputation of companies in front of stakeholders. Consequently, this reputation will improve the companies 'relationship and their compliance with the stakeholders' demands create a healthy atmosphere between them, which will spare the company from risk and bring in more investments, which in turn will raise its financial performance (Clarkson, 1995).

Engaging in sustainable activities creates a competitive advantage for companies. According to Russo et al. (1997), the commitment of some companies for their responsibilities towards stakeholders may create a good reputation according to this theory, and thus, this reputation may be a competitive advantage and therefore, this competitive advantage will lead to more progress in the companies (McWilliams et al., 2011). In addition, Branco et al., (2006) revealed that training employees to adherence to corporate sustainable practices may increase the productivity of employees in the company, and consequently, the expenses that companies pay to hire new people may be reduced, which in turn will lead to lower bills and costs, which eventually make the financial return of the companies will increase.

Looking at the legitimacy theory, which states that there is a communication link and a social relationship between companies and the surrounding community (Gavancha et al., 2020). According to this theory, companies are taking their social responsibilities in order to show that all their actions are legitimate and to improve their image in front of stakeholders. Besides, this theory states that the higher the level of

disclosure and sustainable performance by the owners of companies, the greater the legitimacy they obtain (Gavancha et al., 2020). The value creation theory explains that highly sustainably active companies will enjoy a high value and receive high returns over time compared to their counterparts that do not pay attention to sustainable activities. This has been attributed to the fact that taking high responsibilities will reduce the risks that companies may be exposed to (Zhao, 2015).

Thus, based on the insights of stakeholder theory and legitimacy theory in corporate sustainability, and in line with previous studies, this study suggests the following hypothesis:

H1: An increase in corporate sustainability performance will lead to an increase in corporate financial *performance*.

2.3.2 Overconfidence, Education, Tenure, reputation as moderators

The building of the hypothesis in the next paragraphs adopts arguments based on the upper echelon theory and stakeholder theory. The core view of the upper echelon theory is that the characteristics and incentives enjoyed by executives are the ones that influence and motivate the strategic decisions and the outcome of the company (Hambrick, 2018). This theory is in line with behavioural economics which ascribes that changes and strategies of corporate social responsibility are affected by the characteristics of corporate executives.

In the previous section, the direct effect of CSR on CFP has been explained. In the next section, the moderating effect of the CEO's overconfidence on the relationship between CSR and CFP will be examined. First, a brief explanation about overconfidence will be provided. Second, a brief explanation will be provided about the direct effect of overconfidence on CSR and also the direct effect of overconfidence on CFP. Third, the moderating effect hypothesis will be developed.

2.3.3 Moderating effect of CEO's overconfidence

Overconfidence has been recognized to be an important factor affecting various firm outcomes. According to Moore & Healy (2008), the overconfidence in the executive director is defined as "an excessive exaggeration in the assessments of the validity of his theories, opinions, and judgments, in addition to his broad assessments of his chances of success and continuity" ("Moore & Healy" 2008, P. 502). Overconfident managers act with limited rationality, as many of them consider that their work within a socially responsible framework is unimportant, unnecessary, and not a priority for their company (Park et al., 2020). Besides, they continue to make mistakes by engaging in risky investments and choosing difficult tasks because they believe in their huge power to do everything (Tang et al., 2012). Studies into the antecedents of overconfidence name CEO power and perceived influence to be the main predecessor for developing overconfidence tendencies. Hwang et al., (2020) demonstrate the positive relationship between CEOs' overconfidence and their power within companies. The greater the authority enjoyed by CEOs, the greater overconfident they are in themselves that they are capable of engaging in many different activities, such as the acquisition of companies' shares or engaging in risky activities. Simon et al. (2003) explain the duality of the overconfidence framework, the production of companies whose CEOs are overconfident may be sophisticated consumer-desirable products. On the other hand, it may be risky products.

In general, the literature recorded many studies related to overconfidence. Corporate social responsibility has only taken a narrow space in the previous literature regarding its relationship with overconfidence. However, some literature has reported a conflict that occurs between overconfident executives and stakeholders. Hayward et al. (1997) confirm that executives do not care about the sustainability performance of their companies and tend to reduce the practices of their companies concerning social responsibility because they are not inclined to cooperate with stakeholders. They prefer to rely on their convictions and ideas in solving their problems without referring to other parties. Malmendier & Tate (2005) explain the conflict of interests between overconfident CEOs and stakeholders. Companies run by overconfident CEOs attributed their success in their business to their organized policy, strength, and dependence on their resources. Overconfident CEOs tend to depend on their internal financial resources and do not need to rely on external financial resources. In their point of view. Consequently, it is unlikely that these CEOs will be interested in implementing sustainable policies or engaging in sustainable social activities in order to meet the demands of stakeholders (Tang et al., 2014).

On the contrary, Humphery-Jenner et al. (2016) illustrate the fact that the overconfidence of CEOs may be an important motivation for them to engage in sustainable social activities, provided that engaging in these activities may yield profits to them. Similarly, Chang et al. (2010) document a positive relationship between the overconfidence enjoyed by CEOs, represented by high pay and commitment to social responsibilities, as an increase in commitment to the social responsibilities such as the quality of disclosure leads to an increase in the executive director's wage.

CEOs that are characterized by overconfidence see themselves as capable of taking over all tough tasks (Hayward et al., 2006). As a result, they engage in new activities without anticipating any future consequences. Overconfident executives are characterized by their high expectations and detached outlook especially regarding the financial aspects of their companies. For instance, the expectation of a rise in stock prices or an expectation of obtaining more profit when making a certain decision. However, the expectation policy adopted by those overconfident CEOs may be a catalyst to them to make irrational decisions, such as engaging in risky activities (Malmendier & Tate 2015). From this point, we can come up with a possibility of a presence of a moderating role of overconfidence on the relationship between CSR on CFP, because in case of any irrational decisions and risky activities by overconfident managers, investors, shareholders will be unable to have absolute trust in companies investment, they do not trust the intensions of overconfident managers, investors will perceive the risks associated with overconfident CEOs (Aghazadeh et al., 2018). Therefore, the effect of CSR on CFP becomes smaller. Thus, this study adopts the hypothesis that overconfident CEOs may negatively moderate the relationship between corporate sustainability performance and corporate financial performance.

H2: CEO's overconfidence will negatively moderate the relationship between CSP and CFP

2.3.4 Moderating effect of CEO's Education

The literature on human capital highlights how investment in education opens the way to the wheel of economic growth (Bhagat et al., 2010). In general, the accumulation of human capital has been likened by previous literature as the accumulation of physical capital, and since physical capital is used as a tool for consumption and investment in order to obtain benefits in the future, education is the engine of investment in human capital to achieve the future benefits (Webb et al., 2018).

Extensive research has been done extensively on the relationship between CEO's educational background and firms' financial performance. Darmadi (2013) confirmed that the level of the financial performance of companies represented by Return on Assets (ROA) and Tobin Q has improved when appointing executives with high educational backgrounds. Likewise, it was found in one of the studies conducted on a group of Chinese companies that CEOs with high academic qualifications had a role in enhancing the value of their companies' shares, but they had no effect on their profitability. This was explained by the fact that the high educational background of the CEO may increase the percentage of his expectations towards the values of his company's shares from those who want to invest. Therefore, their firm's value increases (Lu & Zhang, 2015).

It is interestingly that some studies have proven that there is no relationship between the financial performance and the CEO educational background. Gottesman, & Morey (2006) confirmed that the financial performance of companies was not affected by the level of the university degree, whether it was a high or low university degree, no effect on financial performance has been found.

On the other hand, and concerning corporate sustainability, Neubaum et al. (2009) indicated that people with business backgrounds may acquire advanced rational thinking regarding the principles of sustainability and how it generates many financial benefits for companies.

Hambrick & Mason (1984) believes that an individual who has a good educational background, has more values, approach, and knowledge compared to other individuals who do not have an adequate education level, and this leads them to be socially and environmentally committed to their activities within the company. Darmadi (2013) also noted how CEOs with higher university degrees had a greater role in raising corporate performance compared to their less-educated counterparts.

Ma et al. (2019) demonstrate the strong positive correlation between the educational level of the CEO and corporate socially responsible decision-making. They attributed that to the fact that the higher the educational level of the CEO, the more rational decisions towards the stakeholders. Ma et al. (2019) emphasize that meeting the demands of investors and stakeholders is one of the most important priorities for companies, especially in light of the current economic challenges that prevail in the current world. Besides, they confirmed the positive correlation between the CEO educational level and the financial performance of companies, they explained that to the fact that increasing the educational level of executives, creates a greater incentive for them to develop their work and positions in order to obtain higher income and large profits. In addition, the values of highly educated CEOs will match will stakeholder's values because both consider that CSR is beneficial for them.

Hence, an educated CEO may have sufficient knowledge of what the company needs in the future in terms of an appropriate atmosphere for investment, in addition to having advanced rational ideas about meeting the investor's needs, how to create trust between them and investors, and how to attract them to invest within their companies. Hence, since people know that CEOs understand their needs and support them in trying to reduce environmental impact, stakeholders are likely to trust these firms and buy more of their products. Thus, depending on these arguments and empirical studies, the following hypothesis on the role of CEO education is proposed:

H3: CEO's education will positively moderate the relationship between CSP and CFP

2.3.5 Moderating effect of CEO's tenure

The CEO's tenure, which is one of the most important characteristics of the CEO, has been of great importance in the literature, especially due to the controversial relationship with the performance of companies. Many previous literatures indicate that the long period tenure of CEO may not be positive in the full sense. Miller (1991) emphasized that the long-tenured executives tend to avert the implementation of new strategies in their companies, they reflect their unwillingness to change their strategies even if the change is among the requirements of the environment. Tenured CEOs oppose any changes in their organizations because they feel that they do not have the same level of interest in their work in addition to the increasing in the degree of their commitment to their work whenever they spend a long period in their work (Hambrick et al., 1991). On the other hand, Chen et al. (2019) indicate that the presence of the CEO for a short period may make him always motivated to change, he justifies that because the short period may create a greater incentive to implement more projects and plans because they believe that the benefits of these projects will be reaped in the distant future.

Since Hambrick et al. (1991) has shown that the long-tenured CEO opposes changes in their organizations, there may be a difficulty in implementing social activities in their companies, because these activities require new resources and radical changes which may be at the organizational level, for example, therefore, long-tenured CEOs decisions will conflict with implementing sustainable corporate strategies. Thus, a positive effect from CEOs tenure on CSP is expected in the short term, while the opposite one is expected long run, which is a negative effect of CEOs tenure on CSP (U-shaped relationship).

On the other hand, Antounian & Harakeh (2021) has shown that entrenched CEO, which means the long period that the CEO spends in their position, negatively affects the financial performance of companies. The entrenched CEOs creates a power, which enables them to occupy all the decisions of the board of directors and take unilateral decisions that may be very costly, and also make them demand high salaries and compensations that are in their interest and not in the interest of the shareholders (Allgood & Farrell 2000).

The entrenched period for CEOs may become unsuitable for creating new strategic decisions that work to meet the growing needs of stakeholders. According to Simsek, (2007), entrenched CEOs become less responsible for their activities and less sensitive to meet the increasing demands of stakeholders, and inefficient to meet future challenges that always need new ideas and rational decisions. Consequently, their decisions will become irrational, socially irresponsible, and not in the interest of investors and stakeholders (Oh et al., 2018).

Therefore, stakeholders are likely to trust such CEOs and their firms less due to the mismatch of values and because stakeholders are not expecting such companies to have a pro-active CSR position. Due to the lack of stakeholder support and respect for companies with tenured CEOs, it is expected that there is a negative moderation effect of tenure on the CSP-CFP relationship.

H4: The CEO's tenure will negatively moderate the relationship between CSP and CFP

2.3.6 The moderating effect of CEO's reputation

The relationship between CEO reputation and CFP has been studied before. Weng & Chen (2017) have shown how CEOs' reputation positively affects the firm performance; the financial performance of companies becomes better when the CEOs enjoy a better reputation. In particular, a good CEO reputation is positively related to a firm's earnings quality because such CEOs are less likely to tolerate opportunism and rent-seeking (Francis et al., 2008). Also, Radbourne (2003) links the CEO and board of director's reputation to the support of stakeholders and continuous flow of investments to maintain the firm's operations.

However, in terms of relating CEO reputation to CSP, most theoretical assumptions explain how social responsibility has an important effect on improving a company's or CEO's personal reputation. A company's reputation, which can be created by engaging in a social responsibility may contribute to attracting high-quality workers and maintaining their presence, which in turn may be a deterrent in the face of legal and tax risks. (Borghesi et al., 2014). The reverse effect of reputation on corporate social responsibilities has not been studied much in the literature.

In general, and to maintain this good reputation, acting with social responsibility is one of the ways that can maintain a good reputation of companies which will be accepted by the stakeholders (Gaines 2000). Therefore, CEOs with good reputations enjoy the benefits of stakeholder support and, hence, understand the importance of maintaining such support in the future for improved financial performance. This, in turn, leads to the likelihood of CEOs who already have a reputation of socially responsible executives to encourage more activities that stakeholders find appealing, including those of CSP (Cianci & Kaplan, 2010). In addition, Deephouse (2000) shows the link between the good reputation of CEOs and the financial performance of their companies, considering that good reputation means distinguished media reputation, which leads to the creation of competitive advantage because it is an intangible resource for executives, which in turn may reflect positively on financial performance for their companies (Deephouse 2000).

In the same context, Chang (2016) emphasizes the positive moderating role of the good reputation of executives on the relationship between corporate sustainability performance and financial performance because a good reputation may lead to more media coverage of companies and thus stakeholders and investors will be able to obtain sufficient information about the social activities of these companies. Thus, obtaining high financial performance.

In summary, a good reputation, which can be described as responsible behaviour, creates an environment of trust among customers, shareholders, and business owners. CEO manage their reputation by shaping enduring images of their professional and personal abilities and values (Francis et al., 2008).

Stakeholders of the companies that enjoy a good reputation have absolute confidence that these companies will remain responsible for their actions in the future. Ranft et al. (2006) confirm that the CEO's reputation is the cornerstone and the key to its success in dealing with its clients. A reputable CEO contributes to gain the perception of someone capable to responsibly carry out actions of their company (Park & Berger 2004). Executives' enjoyment of a good reputation creates an important tool that may help companies to overcome some events such as crises that companies may be exposed, by gaining customer support and sympathy. Therefore, there is a positive moderating effect of the CEO's reputation in the CSP-CFP relationship, in a way that stakeholders support and trust such companies more straightening the relationship between CSP and CFP.

H5: The CEO's reputation will positively moderate the relationship between CSP and CFP

2.3.7 Hypotheses schematic

H1: *An increase in corporate sustainability performance will lead to an increase in corporate financial performance.*

H2: CEO's overconfidence will negatively moderate the relationship between CSP and CFP

H3: CEO's education will positively moderate the relationship between CSP and CFP

H4: The CEO's tenure will negatively moderate the relationship between CSP and CFP

H5: The CEO's reputation will positively moderate the relationship between CSP and CFP

H2: Overconfidence CEOs take over tough task, they engage in new activities, leads them to make irrational decisions, such as engaging in risky activities, leads to less trust by investors, shareholders in companies investments. (-)

H3: Educated CEOs they possess advanced rational ideas about meeting the investor's needs, they have sufficient knowledge of what the company needs, since people know that CEOs understand their needs, leads to more trust by investors and shareholders (+)

H4: Entrenched-tenured CEOs become less responsible for their activities and less sensitive to stakeholders future needs. Consequently, irrational decisions will be made, such as socially irresponsible decisions, leads to less trust by investors and shareholders (-)

H5: Reputable CEOs create a good environment for investment from the shareholders' points of view. Thus, confidence may be created between stakeholders and these reputable companies because these companies will remain responsible for future actions, leads to more trust among stakeholders and investors (+)



3. Research Methodology

3.1 Sample & Data

The initial sample consists of 100 wealthiest companies in revenues from 13 European countries for a time span between 2009 and 2019. Due to a missing value in some of the extracted data, 23 companies were excluded from this sample, which led to a final sample of 77 wealthiest companies in revenue taken from 13 European companies (Germany, France, The Netherlands, Switzerland, Belgium, Austria, Finland, Sweden, United Kingdom, Ireland, Spain, Norway, and Italy) for a timespan between 2009 and 2019. These companies operate in many sectors such as energy, health, oil, electricity, technology, telecommunications, environment, and other sectors¹



The reasons for choosing these companies as a sample for this study is because these companies enjoy advancement, periodical tremendous revenues over years, and continuous high financial performance. Since this study focuses on the role of chief executives, it will shed light on whether this relationship is strengthened by the role of the CEO Characteristics. Second, this sample was selected due to the power and fame of the CEOs of such companies. Currently, the world is witnessing a rise in the popularity of the names of CEOs and an increase in the visibility of these names in media outlets. The most recent evidence was the effect of Elon Musk's decisions on the digital currencies' markets (Martin, 2021). From this point, we can deduce that the CEOs can influence not only the activities of their firms but also the general market conditions. For example, powerful CEOs can be role models for other companies to adopt CSR activities.

¹ Appendix 2 reviews the list of the companies under study and the sectors to which each company belongs, check pages 84.

The reason for selecting 2009 as the beginning of this research is that it is the period that followed the world financial crisis that occurred in mid-2007 and lasted until mid-2008. While the year 2019 was chosen as the ending period of this research is because it precedes the period of the Covid-19 crisis in 2020. In general, the period between 2009 and 2019 can be described as the period in which the economies began to recover, rise, and progress. In other words, these years can be considered as a crisis-free period.

The quantitative methodology will be used in investigating the role of each of the CEO's characteristics namely, overconfidence, tenure, education, and reputation in affecting the relationship between CSP and CFP. The quantitative methodology will be carried out initially by using cross-section analysis for each year understudy, followed by panel data analysis to determine the relationship between CSP and CFP and the moderating effect of each of CEOs characteristics on the relationship between CSP and CFP. One of the most important features of the quantitative methodology is that it does not require time to collect data. On the contrary, very large data can be collected in a short time. In addition, this method is distinguished from the qualitative method by the possibility of generalizing the results to large groups/populations (Rahman, 2016). The dependent variable used in this study corporate financial performance, and the independent variable is corporate sustainability performance and the moderator in this relationship is each of the CEO's characteristics namely: CEO's reputation, tenure, education, and overconfidence.

All CSP data was gathered from Thomson Reuters Database, the financial data was gathered from the World scope database, whereas the CEO's names and characteristics were retrieved from the WRDS database. The financial data was collected, specifically in one currency, which is the US dollar, because most of the companies under study are distributed among several countries around the world, so to avoid confusion, and in order to generalize the results, the financial data will be collected in the dollar currency.

3.2 Variables

3.2.1 Dependent variable

The dependent variables used in this study are both MTBV and Tobin's Q. Several indicators of corporate financial performance have been identified in previous literature, with some studies relying on accounting-based indicators in their research, such as return on assets or return on equity as a measure of financial performance (Al Manaseer et al., 2012), while others have relied on market-based measures, such as the Tobin Q (Karaca & Ekşi 2012). Al-Matari (2014) explains that accounting-based indicators measure financial performance for a short period while market-based indicators have the ability to measure financial

performance in the long term. Therefore, and since this study covers 11 years, this study will be distinguished from other previous studies by focusing only on market-based indicators by using Tobin's Q as one of the market-based indicators, which can be captured by dividing the market value of the company over the total assets, in accordance with Wagner (2010), and market to book value as a second indicator of corporate financial performance, which can be calculated by dividing the Market value of equity over the book value of equity. Using both indicators to measure the corporate financial performance will make an accurate result about the long-term financial performance and to make the results more comparable with previous literature.

3.2.2 Independent variables measurement

The independent variable used in this study is the ESG score as an indicator of corporate sustainability performance. According to Wanger (2010), corporate sustainability performance is the amount of corporate willingness to implementing sustainable strategies and contributing to carrying out their social responsibilities in all its dimensions. Several measures of corporate sustainability performance have been used in previous studies. Kaplan & Norton (2005) used the Balance Scorecard measure, while Nikolaou & Tsalis (2013) used the new Balance Scorecard, which implicitly relies on the Global Reporting initiative Scale. However, these metrics were not sufficient for their application and generalization of results through their use Cagno et al. (2019). Rather, these measurements were designed to be suitable for certain conditions. Therefore, in this study, and consistent with Manning et al., (2018) a standardized score (Thomson Reuters ESG scores) will be used. One of the most important features of these scores is that they are based on global assessments, it's not evaluated by reliance on companies.

The Thomson Reuters ESG Score represents the corporate sustainability performance based on three dimensions, namely: governmental, environmental, social dimensions. Each of these dimensions involves several categories, each of these dimension's scores will be captured based on its categories. The governance dimension covers the management, shareholders, and CSR strategy categories, the Environmental dimension covers Resource use, emissions, and innovation categories, whereas the social dimension covers the workforce, human rights, community, and product responsibility categories². Finally, the CSP total score will be calculated by summing the scores for each of these dimensions divided by the number of these dimensions, in accordance with (Waddock & Graves, 1997; Manning et al., 2018).

² The information regarding the classification of each CSP dimension was taken from Thomson Reuters ESG database.

3.2.3 CEOs characteristics

CEOs' characteristics are used in this study as a moderator in the relationship between corporate sustainability performance and corporate financial performance. These characteristics are namely, CEO tenure, CEO reputation, CEO educational background, and CEO overconfidence. All CEO's names and characteristics used in this research were retrieved from the WRDS database. The way to measure these characteristics are as follows:

- CEO overconfidence: According to Humphery-Jenner et al. (2016) the compensation of overconfident CEOs differ from those of rational CEOs as overconfident CEOs are offered a contract with such compensation in order to exploit their biased perceptions of the firm value for the benefits of the firm. In addition, Hayward & Hambrick (1997) use relative CEO compensation to measure the self-importance of CEOs. Consistent with previous studies, this thesis will use CEO relative compensation as a measure of CEO overconfidence. CEO relative compensation is calculated as CEO cash compensation (Hayward & Hambrick, 1997).
- **CEO tenure:** the tenure refers to the number of years in which the CEO has remained in his position. In this study, the CEO's tenure will be calculated by summing the number of years that the CEO has remained in his position, consistent with (Godos-Díez 2020).
- **CEO educational background:** the third CEO's characteristic in this study is education attainment. Consistent with Saidu (2019), a dummy variable of 1 if the CEO has a Master's degree or Ph.D. and 0 otherwise.

CEO reputation: Clear empirical measures of CEO reputation are challenging to derive since they require analysis of multiple dimensions of CEOs' ability and personality (Francis et al., 2008). However, several measures have been mentioned in previous research. Milbourn (2003) suggests that CEOs hired outside the organization enjoy a higher reputation than those appointed from within the organization. They use a dummy variable that equals one if the date on which the CEO joined the company is the same as the date, they became CEO. Weng & Chen (2017) and Milbourn (2003) turn to the media-based measure of CEO reputation, as CEOs who are frequently mentioned by the media tend to enjoy a better reputation. However, Rajgopal et al. (2006) suggest that CEOs with outstanding abilities are considered to have a good reputation and use abnormal industry-adjusted ROA as a measure of CEOs' ability. Therefore, in line with Rajgopal et al. (2006), this study will adopt the abnormal industry-adjusted ROA as a measure of CEOs' reputation.

3.3 Control Variables

In order to test the hypotheses as derived in the hypothesis development section, other variables that may affect the relationship between corporate sustainability and corporate financial performance must be controlled for. Previous literature on CSP and CFP relationship has used many control variables. Firstly, according to Myers & Majluf (1984), firms' financial performance increases as long as firms depend on a lower debt, as more debts can reduce the dependencies on internal capital. Therefore, in line with Mashayekhi & Bazaz (2008), this study will use the leverage ratio as a control variable in the relationship between CFP and CSP, which can be calculated by dividing the total debt over the equity, which referred to debt to equity ratio (Mashayekhi & Bazaz 2008).

Secondly, Mashayekhi & Bazaz (2008) confirmed that the bigger companies, the higher firms' financial performance, compared to small firms. Therefore, following Mashayekhi & Bazaz (2008), firm size will be adopted in this study as a control variable, which can be calculated by taking the natural logarithm of total assets of the firm (Mashayekhi & Bazaz 2008; Manning et al., 2018). Thirdly, this study will use year's dummies to control for variations during the time between 2009 and 2019 and industry dummies based on the industry group to control for industry effects. Finally, in line with Tang et al. (2012) and Hull & Rothenberg (2008), firms' R&D expenditure is used as a control variable as higher R&D is associated with higher innovation and higher firm performance. In addition, since a firm has limited resources, CSP activities and R&D activities might be using resources from the same fund, therefore, a certain level of R&D might block the full potential of CSP for the firm. Table 2 gives an overview of the variables used in this research.

Variable type	Description of Variables				
Dependent variables					
Tobin's Q	The market value of the company divided by the total assets				
MTBV	Market to book value: the market value of equity divided by the book value of equity				
Independent variables					
CSP	Corporate sustainability performance: summing the scores of the (Environmental, Social, Governmental) dimensions and divided by 3				
Moderators variables					
CEO overconfidence	Overconfidence measured as the CEO cash compensation				
CEO tenure	The tenure is measured as the number of years that the CEO has remained in his position				
CEO education	The CEO education is measured as a dummy variable of 1 if the CEO obtain MSc, Ph.D., and 0 otherwise.				
CEO reputation	The CEO reputation is measured by the ability of the CEO, which is measured by the following equation: ROA company – ROA industry.				

Table 1: a definition of variables

Control variables	
Leverage	Leverage is calculated by dividing the debt by the equity
Size	Size is measured as the natural logarithm of the total assets
Year	A vector of a year's dummies
Industry	A vector of industries dummies based on the industry group to control for industry effects.
R&D	A firms R&D expenditure

3.4 Regression model

Since the dataset will contain data between 2009 and 2019, a panel data analysis will be used to test for the hypotheses which are suitable to analyze the data. In order to generate an unbiased result and control for years' differences, the analysis will be implemented with either fixed-effects or random effect after performing the Hausman test to choose the most suitable model. Along with controlling for firm-specific factors as well. In the following equations, **i** refers to firm **i**, and **t** refers to year **t**, while (*) indicates the interaction term for each of the CEO's characteristics with the corporate sustainability performance (CSP), it is added to test for the moderating effect of each of CEO's characteristics on the relationship between corporate sustainability performance (CSP) and corporate financial performance (CFP). To estimate the effect of corporate sustainability performance on financial performance, this study will test the following equation:

Hypothesis 1:

 $\mathbf{MTBV}_{it} = \beta 0 + \beta 1 \operatorname{CSP}_{it} + \beta 2 \operatorname{Size}_{it} + \beta 3 \operatorname{Leverage}_{it} + \beta 4 \operatorname{Industry}_{it} + \beta 5 \operatorname{Year}_{t} + \beta 6 \operatorname{R} \otimes D \operatorname{expenditure}_{it} + \varepsilon_{it}$

Tobin's Q_{it} = $\beta 0 + \beta 1 \text{ CSP}_{it} + \beta 2 \text{ Size}_{it} + \beta 3 \text{ Leverage}_{it} + \beta 4 \text{ Industry}_{it} + \beta 5 \text{ Year}_{t} + \beta 6 \text{ R} \text{\&D expenditure}_{it} + \varepsilon_{it}$

To estimate the moderating effect of CEO characteristics (Hypotheses 2- 5) on the relationship between corporate sustainability performance and financial performance, this study will test the following equations:

Hypotheses 2 -5

 $\mathbf{MTVB}_{it} = \beta 0 + \beta 1 \operatorname{CSP}_{it} + \beta 2 \operatorname{Size}_{it} + \beta 3 \operatorname{Leverage}_{it} + \beta 4 \operatorname{Overconfidence}_{it} + \beta 5 \operatorname{Education}_{it} + \beta 6 \operatorname{Tenure}_{it} + \beta 7 \operatorname{Reputation}_{it} + \beta 8 \operatorname{Industry}_{it} + \beta 9 \operatorname{Year}_{t} + \beta 10 \operatorname{R&D} \operatorname{expenditure}_{it} + \beta 11 \operatorname{CSP}_{it}^* \operatorname{Overconfidence} + \beta 12 \operatorname{CSP}_{it}^* \operatorname{Education} + \beta 13 \operatorname{CSP}_{it}^* \operatorname{Tenure} + \beta 14 \operatorname{CSP}_{it}^* \operatorname{Reputation} + \varepsilon_{it}$

Tobin's Q_{it} = $\beta 0 + \beta 1 \text{ CSP}_{it} + \beta 2 \text{ Size}_{it} + \beta 3 \text{ Leverage}_{it} + \beta 4 \text{ Overconfidence}_{it} + \beta 5 \text{ Education}_{it} + \beta 6$ Tenure_{it} + $\beta 7$ Reputation_{it} + $\beta 8$ Industry_{it} + $\beta 9$ Year_t + $\beta 10$ R&D expenditure_{it} + $\beta 11$ CSP_{it}*Overconfidence + $\beta 12$ CSP_{it}*Education + $\beta 13$ CSP_{it}*Tenure + $\beta 14$ CSP_{it}* Reputation + ε_{it}

4. Results

4.1 Descriptive statistics

The following table reports the statistical analysis of the sample under study, which gives a general idea of the number of observations that were used, along with the mean values and both the maximum and the minimum values, as well as the standard deviation of the selected sample.

Variable	Obs	Mean	Ste.Dev.	Min	Max
TOBIN'S Q	847	1.726053	0.8876008	0.731146	10.76218
MTBV	847	2.708607	3.09824	-13.1	65.78
CSP	847	64.32872	15.48484	7.03	109.26
OVERCONFIDENCE	847	2881.423	2989.836	-3356	34833
REPUTATION	847	0.5346	5.78	-35.42978	33.72
TENURE	847	5.956	4.82	1	3.00E+01
SIZE	847	17.32449	1.249447	12.86341	19.88143
LEVERAGE	847	79.7726	94.78525	-1348.53	743.31
R&D	847	1320384	2008813	-4682	1.15E+07

Table	2.	D	escriptive	statistics
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As seen in Table 2, the mean of corporate sustainability performance for this sample is 64.32, and since the range for this score is between 0 and 100, this is an indication that these companies perform well on average in terms of taking sustainable responsibilities. Looking at the characteristics of the CEOs, we note that the average overconfidence is 2881, this may indicate that the rate is very high in terms of overconfidence that executives enjoy compared to other characteristics. The mean of the CEO's reputation is 0.5, which is relatively low, while the mean of the CEO's tenure is 5.9. Overall, and based on this table, there is a big difference between each of the CEOs characteristics in terms of mean, minimum, maximum, and standard deviation.

4.2 Correlation Matrix

Table 3 shows the correlation between the variables that are used in this research. In general, if the value of the regression coefficients between two variables in the table shown above ranges between 0 and 0.3, then the correlation between the two independent variables can be considered weak or within normal limits, while if the values of the regression coefficients take a place between 0.3 and 0.7, then the correlation between the two independent variables can be considered limits, but if the values of the regression coefficients take a place between 0.3 and 0.7, then the correlation between the two independent variables can be considered in the moderate limits, but if the values of the regression coefficients are equal to or more than 0.7, this is a great indication that there is a strong

correlation between the two independent variables, which leads to biased results and calls for further tests on this relationship.

At first glance, there is no appearance of multicollinearity, all the coefficients are less than 0.7, which indicates that there is no strong correlation between the independent variables, which in turn confirms the validity of the results and the absence of any bias in the regression results.

Variables	Tobin's Q	MTBV	Esg	Overconfidence	Reputatio	tenure	Education	Size	Levera	R&
			_		n				ge	D
Tobin's Q	1									
MTBV	0.727***	1								
CSP	-0.124***	-0.103**	1							
Overconfidence	-0.0651	0.0138	0.0800^*	1						
Reputation	0.374***	0.266***	-0.0282	-0.0674	1					
Tenure	0.0925**	0.00141	0.0530	-0.0424	-0.0602	1				
Education	-0.0358	0.0593	0.0790^{*}	-0.00715	0.0354	-0.132***	1			
Size	-0.464***	-0.248***	0.157***	0.301***	-0.186***	-0.0564	-0.0534	1		
Leverage	-0.113**	0.287***	-0.0506	0.0723*	-0.0717*	-0.0609	0.0949**	0.158***	1	
R&D	0.0968**	0.134***	0.0785^{*}	0.251***	0.00366	-0.133***	-0.00541	0.341***	0.0121	1

Table 3. The Pearson Correlation Matrix

*** p<0.01, ** p<0.05, * p<0.1

On the other hand, and to confirm the absence of multicollinearity to confirm this result, a VIF test was performed in table 4, where it appears that the VIF test has a mean value of 1.1, which is much smaller than the critical value 1.11<10, which confirms that there is no multicollinearity, that is, there is no strong correlation between the independent variables with each other.

Table 4: Variance inflation factor

Variable	VIF	1/VIF		
Size	1.3	0.768626		
R&D	1.19	0.840618		
Overconfidence	1.13	0.882001		
Leverage	1.05	0.950521		
Tenure	1.05	0.952961		
CSP	1.05	0.953112		
Reputation	1.05	0.953398		
Education	1.04	0.957994		
Mean VIF	1.11			
VIF test: no multicollinearity (critical value of VIF = 10)				

Looking again at the Pearson correlation table, what is striking is the apparent difference in the signs of the correlation coefficients between the independent variables and between each of the financial performance indicators. The correlation matrix table demonstrates that both Tobin's Q and MTBV are weakly correlated with CSP and each of the CEO characteristics. However, Tobin's Q seems to be moderately correlated only with the company size. The table also reports the positive and significant correlation between the two financial performance indicators and each of CEO reputation and tenure, which may confirm the assumption that the good reputation of managers may constitute a source of confidence and an incentive for investors to invest in companies, and thus, companies will have high financial performance. The table also displays a positive and significant correlation between CEOs' education level and CSP, it can be explained by the fact that the higher the educational level of the CEO, the more rational decisions towards the stakeholders, in line with (Ma et al., 2019). Likewise, the CEOs' overconfidence is positively and significantly correlated with CSP, in line with (Hayward & Hambrick 1997).

Most of the independent variables contradict the expectations indicated in the hypotheses. First of all, the size of the firm is negatively and significantly related to both market-based indicators at coefficients 0.464 < 0.01 and -0.248 < 0.01 respectively, which contradicts many studies that indicated the positive correlation between firm sizes and financial performance. On the other hand, size, as shown in the table, is positively and significantly correlated to the CSP, at a regression coefficient of 0.157, which indicates that the larger the size of the companies, the greater their sustainable performance. It is also noticeable that leverage is positively and significantly correlated to MTBV at a regression coefficient of 0.287 < 0.01. On the other hand, leverage is slightly and negatively correlated with Tobin's Q at a regression coefficient of -0.113 < 0.01, in line with (Mashayekhi & Bazaz 2008).

Besides, the correlation between each of MTBV and Tobin's Q takes another direction with the corporate sustainability performance, which also contradicts the hypothesis formulated in this research. A negative and significant correlation has been found between Tobin's Q and CSP at -0.124 < 0.01, and a negative and significant correlation between MTBV and CSP at a coefficient of -0.031 < 0.01. This contradiction can be explained by the agency theory, which assumes that taking sustainable responsibilities in companies may incur additional costs for companies and thus non-competitive advantages and lower financial performance (Jensen et al., 1976).

4.4 Heteroscedasticity

It is very important to know whether the residuals of the variables are constant over time, therefore, it is necessary to conduct a test to find out whether the standard deviations are constant or not in the regression analysis. Therefore, a modified Wald test was performed which shows in the output values the

uniformity or heterogeneity of standard deviations. The result of the modified Wald test showed that each P-value of the regression analysis (before the interaction and after the interaction) in this research is below 0.05 threshold, see appendix, and as a result, the null hypothesis is rejected and it is confirmed that there is a presence of heteroscedasticity in the data. To tackle this problem, robust standard errors will be implemented when performing regression analysis in either fixed effects or random effects.

4.5 Autocorrelation

One of the ordinary least square assumptions is that the error terms should not be correlated to each other within a time series, so if the errors are correlated to each other within a time series, then there will be a violation of the OLS assumption, and there will be a dependency between the errors and they will be affected by each other within the time series, which in turn makes the estimates biased and ineffective, that is called autocorrelation, which is expressed by the following equation: $\epsilon t = \rho \epsilon - 1 + \omega t$. Therefore, the Wooldridge test was implemented on the dataset to detect the autocorrelation for the four equations (before and after the interaction terms) formulated in this research. The result of the test confirmed a presence of autocorrelation in the first model using Tobin's Q as a dependent variable, Prob > F= 0.02 which is below the 0.05 threshold. However, no autocorrelation has been found in the second model when the MTBV was taken as a dependent variable Prob > F= 0. 221 which is above the 0.05 threshold.

Likewise, the Wooldridge test confirmed a presence of autocorrelation in the third model with the interaction term using Tobin's Q as a dependent variable, Prob > F= 0.021 which is below 0.05 threshold, while the test shows no autocorrelation has been found in the fourth model with the interaction when the MTBV was taken as a dependent variable, Prob > F= 0.20 which is below 0.05 threshold. See appendix. To tackle this problem, robust standard errors will be performed when running the regressions with either fixed-effects or random-effects model.

4.6 Stationarity

One of the most important characteristics that the time series should have is that it should be constant over time, which is called in statistics, stationarity. And in order to get a reliable result when performing a regression analysis of the effect of the independent variable on the dependent variables, a stationarity check should be implemented in the time-series data. Therefore, a Fisher-type unit root was performed to test whether there is a unit root in the data, this test is based on the Augmented Dicky-fuller test which determines whether the mean, variance, and trend are constant over time. Table 5 reports the result of this test before performing the regressions with an interaction term.

Variable	Inverse chi-squared	P-value
Tobin's Q	179.7800	0.0761
MTBV	309.774	0.00
CSP	279.81	0.00
Size	124.02	0.9
Leverage	231.798	0.00
R&D	274.77	0.00

Table 5. Unit root test for stationarity (before interaction)

Looking at Table 5, the p-value for CSP, Leverage, R&D, and MTBV is below the 0.5 threshold, which proves that there is no unit root in these variables and thus the null hypothesis can be rejected and said that they are stationary. On the contrary, it can be seen that the null hypothesis cannot be rejected for both Tobin's Q and size, the p-value for each of the two variables is greater than the 0.05 threshold, which is evidence of the existence of a unit root in these variables, meaning that the mean, trend, and variance are not constant over time, which is called non-stationary, in this case, performing the regression with either fixed or random effects in the presence of non-stationary will yield biased results, therefore, the non-stationary will be tackled from this variables by taking the first differences for non-stationary variables in the regressions.

Table 6. Unit root test for stationarity (before interaction)

Variable	Inverse chi-squared	p-value
CSP*Education	218.4	0.00
CSP*Tenure	445.3506	0.00
CSP*Overconfidence	334.8625	0.00
CSP*Reputation	238.94	0.00

On the other hand, a Fisher-type unit root was also performed on the model with interaction between CEOs characteristics and CSP-CFP relation to test whether there is a unit root in the data and to determine whether the mean, variance, and trend are constant over time. Table 6 reports the result of this test. Looking at table 6, the p-value for all variables, ESG*Overconfidence, ESG*Tenure, ESG*Reputation, ESG*Education, are below the 0.5 thresholds, in this case, the null hypothesis will be rejected, which proves that there is no unit root in these variables and thus and said that they are stationary.
4.7 Normality

The normal distribution is one of the important assumptions of OLS, due to its great importance in calculating the probability that errors are distributed naturally and in an orderly manner. In general, even if the distribution of errors is not normally distributed, it cannot be said that the results will be biased and imprecise. In general, fulfilling this condition may generate more reliable results. Therefore, a Skewness and Kurtosis test for normality was performed to check whether the residuals are normally distributed or not. Looking at the following paragraphs, it is clear that the residuals in the 4 models are not normally distributed, the Prob >chi2 for all models are below 0.05, which is a big evidence of non-normality in the models, it is confirmed that this assumption is weak and the results should be interpreted with caution.³

4.8 Regression results

In the previous subsections, several OLS assumptions were tested, in this section, a regressions analysis will be analyzed in two ways. First, pooled OLS cross-section analysis will be conducted to investigate the impact of the corporate sustainability performance on the financial performance of the companies understudy for all years of study starting from 2009 to the end of 2019. Second, a Hausman test will be conducted to determine which model is preferred for the regression analysis for the four models in order to see whether to use random-effects or fixed-effects model.

For the model before the interaction, specifically, when using Tobin's Q as the dependent variable, the result of the Hausman test showed that the p-value is less than the significance level, which is 5%, therefore, the null hypothesis must be rejected, as a result, a fixed-effects model is preferred for regression analysis. Similarly, the outcome of the Hausman test for the MTBV model was in favor of the fixed effects model, the p-value is less than 5% significance level, as a result, the null hypothesis is rejected and the fixed effects model is preferred. For the model with interaction, specifically, when using Tobin's Q, the p-value is less than the threshold of 5%, therefore, the null hypothesis must be rejected, as a result, a fixed-effects model is preferred for the model with interaction. Similarly, the Hausman test for the MTBV model was in favor of the fixed effects model is preferred for the model with interaction. Similarly, the Hausman test for the MTBV model was in favor of the fixed effects model is preferred for the model with interaction. Similarly, the Hausman test for the MTBV model was in favor of the fixed effects model is preferred for the model with interaction. Similarly, the Hausman test for the MTBV model was in favor of the fixed effects model is preferred. See appendix. All regression are corrected from heteroscedasticity, autocorrelation by using a robust standard error for each equation.

4.8.1 The relationship between CSP and CFP-Cross Section Analysis

The results of the cross-section regressions show that there is no evidence of a significant relationship between corporate sustainability performance and corporate financial performance when using

³ All the tables results and plots of the Skewness/kurtosis tests are included in appendix 1, pages 72-73

MTBV as a dependent variable for all years of study, all regression coefficients were not significant, all P values were higher than the threshold 0.5, see appendix for regression tables, this result is consistent with (Soana, 2009; Ullmann, 1985), which confirmed the non-relationship between corporate sustainability performance and corporate financial performance⁴. Similarly, no evidence of a significant relationship has been recorded when using Tobin's Q as a dependent variable for 10 years of study. However, a negative and significant relationship between the corporate sustainability performance and corporate financial performate sustainability performance and corporate financial performance has been found only in 2014 for the sample understudy at the coefficients of - 0.0180, the P-value equal to 0.00 which is less than the critical value of 0.05, this finding is in line with many studies (Brammer et al., 2006; Jha, & Rangarajan, 2020) which proves the negative relationship between CSP and CFP, this result attributed to the fact that taking social responsibilities may incur companies additional expenses, thus, less financial performance, in line with the agency theory. These results contradict the first hypothesis of this research which states that an increase in corporate sustainability performance will lead to an increase in corporate financial performance. Therefore, and based on these results, hypothesis 1 should be rejected.

Looking at the effect of the control variables, it is worth noting that most of the control variables in each year of study had a significant impact on the financial performance of companies represented by MTBV. Research and development recorded a significant positive impact in all years of study on MTBV and Tobin's Q, p values in each year were below the threshold of 0.05, which is great evidence that the increased spending on research and development raises the level of innovation within companies, which attracts more investments and, accordingly, leading to an increase in financial performance. However, a negative and significant relationship at a threshold of 5 % between the size of the company and both MTBV and Tobin's Q for all years study, this negative relationship may be attributed to the diseconomies of scale. In other words, the bigger the size, the higher expenses firms will have, and hence, a less financial performance. Leverage is positively and significantly correlated with the financial performance of companies represented by MTBV in 2009, 2014, 2016, 2019, which may indicate that assets that are owned and financed within the company through the use of debt may have significant returns, in line with (Rehman, 2013). However, no direct effect of leverage has been recorded in all years of study when taking Tobin's Q as a dependent variable, all regressions coefficients are negative and insignificant, and all p values are higher than the threshold 0.05, see appendix⁵.

⁴ Paragraph 4.8.1 is explained based on Stata original tables.

⁵ All cross section analyzes (Stata original tables) are included in appendix 1. Page: 74

4.8.2 The relationship between CSP and CFP-FIXED EFFECTS

Table 7 reports the result of the fixed-effects model. The second column shows the direct effect of the corporate sustainability performance and each of the control variables on the first dependent variable represented by Tobin's Q. Similarly, the third column in Table 7 shows the direct effect of the corporate sustainability performance as an independent variable and each control variable on the second dependent variable, represented by MTBV. The result of the regression for the fixed effects model shows a slight consistency with what was expected by the hypothesis that was formulated in this research. The first hypothesis expected that an increase in corporate sustainability performance will lead to an increase in corporate financial performance, while the results showed a positive but insignificant effect of the corporate sustainability performance on the financial performance when using Tobin's Q as the dependent variable. On the other hand, the results showed a negative and insignificant relationship between corporate sustainability performance and corporate financial performance when using MTBV.

Therefore, and based on the results, hypothesis 1 is rejected, and we can conclude by that, for the studied sample, there is no evidence that an increase in corporate sustainability performance will lead to an increase in corporate financial performance. This result is in line with (Soana, 2009; Ullmann, 1985), who also identified the non-correlation between CSR-CSP.

	(1)	(2)	
Variables	Tobin's Q	MTBV	
CSP	0.00103	-0.00681	
	(0.00132)	(0.0116)	
Size	-1.635**	-2.228*	
	(0.716)	(1.252)	
Leverage	0.000771	0.0166***	
	(0.000518)	(0.00523)	
<i>R&D</i>	1.51e-08	-9.48e-08	
	(4.86e-08)	(2.64e-07)	
o.yr2009	omitted	omitted	
yr2010	-0.0580	-0.304	
	(0.0983)	(0.325)	
yr2011	-0.0113	0.0227	
	(0.154)	(0.388)	
yr2012	-0.209***	-0.761***	
	(0.0589)	(0.225)	
yr2013	-0.0419	-0.141	
	(0.0439)	(0.258)	
yr2014	-0.0548	0.346	

Table 7. The relationship between CSP and CFP-fixed effects

	(0.0867)	(0.314)	
yr2015	-0.331***	0.714	
	(0.0629)	(0.818)	
yr2016	-0.152***	-0.0115	
	(0.0543)	(0.393)	
yr2017	-0.139***	-0.000401	
	(0.0475)	(0.179)	
yr2018	-0.115	0.673**	
	(0.133)	(0.309)	
Constant	0.0702	2.080***	
	(0.106)	(0.738)	
Observations	761	761	
R-squared	0.391	0.253	
Number of companies	77	77	

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Looking at the effect of the control variables, we notice that there is a negative and significant relationship at a 5 % between the size of the company and the financial performance represented by Tobin's Q. Similarly, a negative and significant relationship have been found at 0.1 degree between the size of the company and the MTBV, that this result contradicts the expectations of a positive relationship between size and financial performance, this negative relationship could be due to the diseconomies of scale. Leverage is positively and not significantly correlated with the financial performance of companies represented by Tobin's Q while it is positively and significantly correlated with MTBV at the 0.01 level, which may indicate that assets that are owned and financed within the company through the use of debt may have significant returns, in line with (Rehman, 2013)

Regarding R&D expenditure, it is noted that there is a positive but insignificant relationship between R&D expenditure and corporate financial performance represented by Tobin's Q. On the other hand, negative and insignificant effects it has on corporate financial performance represented by MTBV. These results related to research and development may partially consistent with what was expected in this research that increasing research and development expenditure may increase innovation, which positively affects financial performance. However, the negative relationship between financial performance represented by MTBV and research and development expenditure may be explained by the fact that some companies may have limited financial resources, and that several activities in the company may use resources from the same fund, so increasing expenditures on research and development to certain limits may hinder financial performance.

4.8.3 The moderating effect of CEOs characteristics on the relationship between CSP and CFP-FIXED EFFECTS-Using Tobin's Q as a dependent variable

Table 8 reports the result of the fixed effects model for interaction term for each of the CEO characteristics on the CSP-CFP relationship. Table 8 shows the direct effect of the corporate sustainability performance, the control variables, and the direct effect of each CEOs characteristics on corporate financial performance represented by Tobin's Q. Most importantly, table 8 reports the results of the interaction term (after centering) for each CEO's characteristics on the CSP-CFP relationship represented by Tobin's Q.

It is worth mentioning that the results recorded in table 8 express the regression coefficient of the interaction term after centering. The regression coefficient results when centering the variables are more accurate because without centering the variables, the coefficient of the main interaction term represents their value when the value of one of these two variables is equal to zero, while when centering the variables, the main effect of the interaction term represents their value when the value of one term represents their value when the value of the interaction term represents their value when the value of the second variable is equal to its mean.

The second hypothesis expects a negative moderating effect of overconfidence on the CSP-CFP relationship. As shown in table 8, there is a consistency with what was expected in hypothesis 2. However, the results are not that significant (-4.46e-07; P-value>0.05) and it does not confirm the expectations, accordingly, the null hypothesis is accepted and thus, the second hypothesis is rejected and we can conclude that, for this sample, that there is no significant role for CEOs overconfidence on the relationship between corporate sustainability performance and corporate financial performance. Moreover, given the interaction term, the relationship between CSP and CFP for the first financial performance indicator Tobin's Q remains insignificant as before the interaction term, this indicates that even the interaction term has been conducted, the CSP-CFP relationship is still insignificant for this sample.

Looking at the effect of the control variables used for the second hypothesis, see column 2-table 8, a negative and significant relationship at a 5 % has been found between the size and the financial performance represented by Tobin's Q. This negative relationship could be due to the increase in costs incurred by companies as a result of increasing their size. On the other hand, leverage is positively but insignificantly correlated with the financial performance (0.000770; p-value>0.05) represented by Tobin's Q, which is an indication that the assets that are owned and financed within the company through the use of debt may have significant returns. Furthermore, an insignificant and positive relationship has been found between R&D expenditure and corporate financial performance represented by both Tobin's Q.

Looking at hypothesis 3 and based on the results of the table, we note a negative but insignificant impact on the educational background enjoyed by the CEO on the CSP-CFP relationship (-0.00631; P-value>0.05) measured by Tobin's Q, which is contrary to what the third hypothesis predicted about a positive and significant impact of postgraduate CEOs on the relationship between corporate sustainability performance and corporate financial performance. This insignificant result may be explained by the fact that CEOs with a high educational background, as Masters, PhDs...Etc usually look at short-term goals such as profitable goals more than looking at long-term goals as meeting the needs of stakeholders (Miller and Xu 2017). Moreover, the experiences and skills of the CEO may be more important than obtaining a high educational degree, Willers et al., (2020), thus, it's unlikely to create a role in creating trust between stakeholders and companies. Thus, there will be no possibility of moderating the effect of education on the CSP-CFP relationship. Accordingly, hypothesis 3 is rejected and we can conclude that, for this sample, that there is no significant role for CEOs' high education on the relationship between corporate sustainability performance and corporate financial performance.

Looking at the effect of the control variables used for the third hypothesis, see column 5-table 8, a negative and significant relationship at a 5 % has been found between the size and the financial performance represented by Tobin's Q. Moreover, leverage is found to be positively but insignificantly correlated with the financial performance represented by Tobin's Q, Furthermore, R&D expenditure is found to be positive and insignificantly correlated with corporate financial performance represented by both Tobin's Q.

	(1)	(2)	(3)	(4)
Variables	Interaction model for Tobin's Q	Interaction model for Tobin's Q	Interaction model for Tobin's Q	Interaction model for Tobin's Q
CSP	0.00142	0.000842	0.000815	0.00402
	(0.00121)	(0.00129)	(0.00145)	(0.00251)
Size	-1.655**	-1.640**	-1.581**	-1.620**
	(0.729)	(0.714)	(0.622)	(0.698)
Leverage	0.000770	0.000783	0.000761	0.000732
	(0.000513)	(0.000520)	(0.000458)	(0.000463)
R&D	1.93e-08	1.25e-08	1.55e-08	2.67e-08
	(5.19e-08)	(4.74e-08)	(4.99e-08)	(5.69e-08)
Overconfide	2.06e-06			
nce				
	(7.41e-06)			
CSP*Overc onfidence(centered)	-4.46e-07			
,	(4.76e-07)			

Table 8. The moderating effect of CEO characteristics between CSP and CFP-fixed effects model (After centering

2011.year	0.0494	0.0468	0.0638	0.0418
	(0.0709)	(0.0687)	(0.0735)	(0.0656)
2012.year	-0.155	-0.157	-0.112	-0.153
	(0.138)	(0.136)	(0.103)	(0.136)
2013.year	0.0127	0.00924	0.0489	0.0169
	(0.102)	(0.101)	(0.0785)	(0.0997)
2014.year	0.000684	-0.00238	0.0233	0.00482
	(0.0394)	(0.0398)	(0.0384)	(0.0395)
2015.year	-0.285**	-0.279***	-0.239***	-0.277**
	(0.108)	(0.104)	(0.0841)	(0.110)
2016.year	-0.0966	-0.0981	-0.0434	-0.106
	(0.0768)	(0.0775)	(0.0513)	(0.0854)
2017.year	-0.0864	-0.0865	-0.0303	-0.0871
	(0.123)	(0.120)	(0.0776)	(0.125)
2018.year	-0.0617	-0.0602	-0.0221	-0.0596
	(0.0506)	(0.0523)	(0.0699)	(0.0537)
2019.year	0.0518	0.0521	0.118*	0.0519
	(0.103)	(0.101)	(0.0623)	(0.103)
Tenure		0.00452		
		(0.00365)		
CSP*Tenur		-0.000278		
e(centered				
)				
		(0.000229)		
Reputation			0.00882	
			(0.00646)	
CSP*Reput			-0.00108*	
ation(cente				
rea)			(0, 000613)	
Educ MSc-			(0.000015)	0.482
PhD				0.102
				(0.443)
CSP*Educ				-0.00631
ation(cente				
red)				(0.00597)
C (()	0.0102	0.00424	0.0107	(0.00587)
Constant	-0.0193	0.00434	-0.0197	-0.225
	(0.0962)	(0.09/5)	(0.111)	(0.205)
<i>Observatio</i>	761	761	761	761
R-squared	0.392	0.392	0.439	0.399
Number of	77	77	77	77
c name			. •	

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

As for hypothesis 4, Table 8 provides slight support for this hypothesis, which assumes the negative impact of the CEO tenure on the relationship between corporate sustainability performance and corporate financial performance represented by Tobin's Q. However, the results are insignificant (-0.000278; P-value > 0, 05). This insignificant result does not support the arguments by Simsek, (2007), that long CEOs' tenure

may not create an incentive for CEOs to implement new strategies that aim to meet the needs of stakeholders and how they become less responsible for their activities in the long run. Same as prior hypotheses, see column 3-table 8, a negative and significant relationship at a 5 % has been found between the size and the financial performance represented by Tobin's Q. A positive correlation between leverage and financial performance represented by Tobin's Q. However, the coefficient is not significant (0.000783). Similarly, a positive and insignificant correlation (1.25e-08) has been found between leverage and Tobin's Q. Accordingly, hypothesis 4 is rejected and concluding that, for this sample, there is no significant role for CEOs' tenure on the relationship between corporate sustainability performance and corporate financial performance.

Regarding hypothesis 5, this research hypothesized the positive moderating effect of a CEO's reputation on CSP-CFP relationship. However, the opposite results have been recorded, a negative and significant moderating effect of reputation (-0.00108*) have been found on the relationship between CSP and CFP when the CFP measured by Tobin's Q, whereas, the coefficient of the direct effect of CSP is insignificant (0.000815; P-value>0.05. In this case, it is expected that the relationship between corporate sustainability performance and corporate financial performance may be significant at a certain level of the CEO's reputation, therefore, and to check that, a plot⁶ of the interaction has been performed.

Table 9 presents the expected margins of the relationship between corporate sustainability performance and corporate financial performance based on the reputation levels of CEOs⁷. As shown, the relationship can be considered significant at a p-value of 0.021, see table 9, only when the level of reputation enjoyed by the CEOs is equal to **-5**, **25446**, which is got it by subtracting the standard deviation from the mean $(.534612- 5.789072= -5, 25446)^8$. Hence, it can be concluded that the relationship between CSP and CFP represented by Tobin's Q is positive and significant only in those companies whose CEOs have a reputation that is below the average.

In general, this result contradicts the arguments that were mentioned in hypothesis 5 of this research, this negative result may be attributed to the fact that these companies may prioritize their financial performance over socially responsible activities which in turn may undermine the trust of investors and stakeholder in companies. Investors and shareholders will be unable to have absolute trust in companies' decisions because they will perceive the risks. Thus, less trust in companies' policies, which in turn will affect negatively the relationship between CSP-CFP. Therefore, hypothesis 5 of this research is rejected

⁶ The line plot of the interaction Reputation*CSP is included in appendix 2

⁷ Check appendix 2 for Table 9, which explains the average marginal effects of the interaction term CSP*Reputation.

⁸ The calculations were carried out based on the data presented in table 11, see appendix 2.

and it is concluded that for this sample, the reputation enjoyed by the companies CEO negatively affects the relationship between corporate sustainability performance and corporate financial performance.

Analyzing other control variables used in testing this hypothesis, it is observed from table 8-column 3, that there is a negative and significant correlation at a 5 % (-1.581**) between the size between two periods and the financial performance represented by Tobin's Q. As said before, this negative relationship could be attributed to the diseconomies of scale. On the other hand, leverage is positively but insignificantly correlated with Tobin's Q.

4.8.4 The moderating effect of CEOs characteristics on the relationship between CSP and CFP-FIXED EFFECTS-Using MTBV as a dependent variable

Table 10 reports the result of the fixed effects model for interaction term for each of the CEO characteristics on the CSP and CFP relationship while considering MTBV as a dependent variable. Table 9 recorded the direct effect of the CSP, all the control variables tested, and the direct effect of each CEOs characteristics on corporate financial performance represented by MTBV. In general, Table 9 reports the results of the interaction term (after centering) for each CEO characteristic on the CSP-CFP relationship represented by MTBV.

Variables	(1) Interaction model-MTBV	(2) Interaction model- MTBV	(3) Interaction model- MTBV	(4) Interaction model- MTBV
CSP	-0.00690	-0.00501	-0.00769	0.0318
	(0.0128)	(0.00945)	(0.0124)	(0.0274)
Size	-2.243*	-2.205*	-1.948***	-2.030**
	(1.184)	(1.244)	(0.676)	(1.006)
Leverage	0.0166***	0.0165***	0.0166***	0.0161***
	(0.00522)	(0.00520)	(0.00520)	(0.00456)
R&D	-8.47e-08	-1.07e-07	-3.62e-08	6.32e-08
	(2.49e-07)	(2.61e-07)	(2.52e-07)	(3.42e-07)
Overconfid	2.04e-05			
ence				
	(2.23e-05)			
CSP*Overc	2.37e-07			
onfidence(
centered)				
<i>,</i>	(1.75e-06)			
2011.vear	0.322**	0.316**	0.423**	0.266**
2	(0.133)	(0.135)	(0.189)	(0.109)
2012.vear	-0.466**	-0.426**	-0.227*	-0.477*
2	(0.222)	(0.192)	(0.125)	(0.251)
2013.vear	0.157	0.213*	0.359**	0.176
	(0.136)	(0.123)	(0.146)	(0.145)
2014.vear	0.646***	0.670***	0.757***	0.676***
<i>j</i> eu.	(0.219)	(0.228)	(0.220)	(0.224)
2015 vear	1.007	1.044	1.208	0.965*
=	,			

Table 10. The moderating effect of CEO characteristics on CSP-CFP-Fixed effects model (After centering)

	(0.646)	(0.640)	(0.761)	(0.503)
2016.vear	0.291	0.290	0.570	0.141
2	(0.258)	(0.264)	(0.408)	(0.243)
2017.vear	0.289	0.321	0.602***	0.216
	(0.219)	(0.215)	(0.204)	(0.303)
2018 year	0.964***	0.956***	1 119***	0.936***
2010.900.	(0.215)	(0.207)	(0.323)	(0.186)
2019 year	0.288	0.300	0.631**	0.221
2019.year	(0.306)	(0.324)	(0.269)	(0.362)
Tomura	(0.500)	-0.00402	(0.20))	(0.502)
Ichure		(0.0298)		
CSD*Tanu		0.00323		
valaantavad		0.00525		
)				
)		(0, 00460)		
Doputation		(0.00409)	0.0722**	
Керишиюн			(0.0723)	
CCD*D			(0.0326)	
CSP*Reput			-0.00567	
ation(cente				
rea)			(0.00400)	
			(0.00409)	(2(0
Eauc_MSC				6.360
_PhD				(5 (20))
CODATI				(5.628)
CSP*Eauc				-0.081/
ation(cente				
rea)				(0.075()
<i>C i i</i>	1 717**	1 (04**	1 400**	(0.0756)
Constant	1./1/**	1.084**	1.488***	-1.302
	(0.6/8)	(0.663)	(0./34)	(2.681)
Observatio	761	761	761	761
ns				
R-squared	0.253	0.256	0.312	0.304
Number of	77	77	77	77
c name				

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

It is hypothesized in the second hypothesis that there is a negative moderating effect of CEOs' overconfidence on the relationship between CSP-CFP. However, the results report an inconsistency with what was expected in hypothesis 2. The results in Table 10 show a positive and insignificant effect of CSP*CEOSs overconfidence (2.37e-07) and it does not confirm the expectations. Therefore, the second hypothesis 2 rejected and we can conclude that based on current results, that there is no evidence of any role of CEOs overconfidence on the CSP-CFP relationship. Moreover, it is noted that the relationship between CSP and CFP for the second financial performance indicator MTBV remain insignificant despite the interaction between CSP*overconfidence (-0.00690; P-value >0.05). These contradictory results can be attributed to the fact that the perceptions of investors and stakeholders towards the adoption of corporate social responsibility differ, and may also be attributed to the difference between countries (Park et al., 2019). There could be a possibility that the moderating effect of CEOs' overconfidence on the relationship between CSP-CFP is different among countries, rather than combining all countries in one sample.

Analyzing the effect of control variables used for the second hypothesis on CFP see column 2-table 10, a negative and significant relationship at a 5 % significance level has been found between the size and the MTBV. This negative relationship supports the arguments that increasing the size leads to increasing the costs in companies which reduces the financial performance. Looking at leverage, it is shown how it is positively and significantly correlated with MTBV (0.0166***), which implies that the higher leverage (debt to equity ratio) leads to higher MTBV.

Testing hypothesis 3 and based on the results of table 10, a negative and insignificant role has been found of the educational background enjoyed by the CEO (-0.0817; P-value>0.05) on the relationship between CSP-CFP (MTBV), which is contrary to what the third hypothesis predicted about a positive and significant impact of postgraduate CEOs on the relationship between corporate sustainability performance and corporate financial performance. Therefore, based on these results, the null hypothesis is accepted, and accordingly, hypothesis 3 is rejected and concluding that for this sample, the higher education of CEOs' does not affect positively the relationship between CSP and CFP represented by MTBV.

Analyzing the effect of control variables used in testing the third hypothesis, see column 5-table 10, similar to prior results in testing hypothesis 2, a negative and significant correlation at a 5 % has been found between the size and the financial performance represented by MTBV(-2.030**). Furthermore, a positive and significant correlation between Leverage and CSP represented by MTBV along with a positive and insignificant relationship between R&D expenditure and corporate financial performance represented by both MTBV.

Within table 10 also, the regression results of testing hypothesis 4 have been recorded. The CEO tenure has been expected in this research to be negatively moderating the relationship between CSP-CFP represented by MTBV. Contrary to this expectation, the result shows a positive effect of Tenure on the CSP and CFP relationship. However, the coefficient of the interaction term CSP*Tenure was not significant (0.00323; P-value>0, 05) even when the financial performance is measured by MTBV. Based on these results, hypothesis 4 is rejected and therefore concluding that there is no moderating effect for the CEO tenure on the relationship between CSP-CFP.

Looking at hypothesis 5 which states a positive moderating effect of CEOs' reputation on the relationship between CSP and CFP. The result reports a negative moderating effect reputation has on CSP-CFP relation when the CFP is measured by MTBV. However, the coefficient is not significant (-0.00567; P-value>0.05). Even though there is a positive and significant effect of reputation on the financial performance MTBV, the result of the moderating effect is insignificant. This result not in line with the arguments mentioned in chapter 2 of this research. Therefore, the null hypothesis is accepted for this

hypothesis and concludes that for this sample, there is no evidence of the positive moderating effect of CEOs' reputation on the relationship between corporate sustainability performance and financial performance. Analyzing other control variables used in testing this hypothesis, it is observed from table 9-column 4, that there is a negative and significant correlation (-1.581** P <0.05) between the size and the financial performance represented by MTBV. On the other hand, leverage is found to be positively and significantly correlated with MTBV (0.0166*** P <0.001).

5. Conclusion and Discussion

Over the fifty years, research is still going on to determine the compass about the relationship between corporate sustainability performance and financial performance. Over time, many theories emerged, such as agency theory, stakeholder theory, and legitimacy theory. Each theory has its supporters in explaining the motivation behind taking social responsibilities, and as a result, researchers started to base on these theories to reach the nature of the relationship between corporate sustainability performance and corporate financial performance. Consequently, contradictory results emerged over time, so it was necessary to search in-depth for some factors that can moderate this relationship between corporate sustainability performance and financial performance. Hence, this study came intending to research indepth and investigate whether some factors have a moderating effect on this relationship between corporate sustainability performance and corporate financial performance.

The focus of this study was to delve deeply into the relationship between corporate sustainability performance and corporate financial performance. This study was distinguished from other studies by its focus on the moderating role of individual characteristics separately on the relationship between corporate sustainability performance and corporate financial performance. In general, the previous literature was only focusing on demographic characteristics and organizational factors of executives. This study added to the literature by moving away from accounting indicators in measuring the financial performance of companies, which distinguishes it from the previous studies that focused intensively on accounting standards. On the contrary, two market indicators were chosen to measure the financial performance of the companies under study.

This study tested a sample of 77 wealthy companies in terms of revenues, distributed within Europe over a time from 2009 to 2019. The quantitative methodology has been applied in this research in investigating the role of each of the individual CEO's characteristics namely, overconfidence, education, tenure, and reputation on the relationship between corporate sustainability performance and corporate financial performance. This study used two market-based indicators for corporate financial performance as ,a dependent variableto make the findings more comparable with previous literature. The ESG score was

used as an indicator for corporate sustainability performance. As for the moderating effect of CEOs' characteristics, the CEO relative compensation is used as an indicator for CEO overconfidence, in line with (Hayward & Hambrick, 1997). The number of years that the CEO has remained in his position was used as an indicator for the CEO's tenure in line with (Godos-Díez 2020).

As for the CEO education, and consistent with Saidu (2019), a dummy variable of 1 if CEO is postgraduate (Mba-MSc-PhD) and 0 otherwise as an indicator of CEO education. Finally, industry-adjusted ROA was used as an indicator of CEOs' reputation, in line with Rajgopal et al. (2006).

The regression analysis in this study was carried out in several stages. In the first stage, the OLS assumptions were studied, in order to ensure that the data under analysis was free of any bias, accordingly, multicollinearity, autocorrelation, stationarity, and normality were checked. Besides, the residuals of the variables were checked to see if they are constant over time by implementing the heteroscedasticity test. Based on these checks, and before initiating any regression analysis, the apparent biases were corrected by implementing a robust standard error for each equation.

In the second stage, the effect of corporate sustainability performance on the corporate financial performance was examined using the cross-section analysis-OLS regression analysis, the results showed the opposite of what was expected in the first hypothesis in this research, where it was hypothesized that there is a positive relationship between corporate sustainability performance and corporate financial performance, while the results confirmed that there was no positive relationship between the corporate sustainability performance and corporate financial performance for these companies for most of the years using both dependent variables. Interestingly, the results of the cross-section analysis have shown only a significant and negative relationship between the corporate sustainability performance and corporate financial performance represented by MTBV in 2014, which is also inconsistent with what was expected in hypothesis accepted, and it can be concluded that for this sample, there is no positive relationship between the corporate financial performance represented by MTBV and Tobin's q.

While in the third stage, regression analysis was conducted to examine the relationship between corporate sustainability performance and corporate financial performance using a fixed-effects model, in order to control for differences that change over time. However, the results reported insignificant results, the results did not show any positive relationship between corporate sustainability performance and financial performance using both dependent variables MTBV and Tobin's q. This finding is in line with prior studies (Soana, 2009; Ullmann, 1985) by confirming a non-relationship between CSP and CFP

In the fourth stage, the moderating influence of some individual characteristics of CEOs on the relationship between corporate sustainability performance and financial performance was studied using two market measures. The results showed a slight consistency of some of the results with several hypotheses, however, the four hypotheses were rejected because the regression coefficients for the intermediate effects were not significant.

The results report a negative and insignificance coefficient for CEO overconfidence with relation to CSP-CFP. This can conclude that for the sample under study, there is no moderating negative effect of CEO overconfidence on the relationship between corporate sustainability performance and financial performance. On this basis, hypothesis 2 was rejected. Similarly, the results were not significant for the moderating effect of the CEO's tenure in both two regression models using two dependent variables. Therefore, hypothesis 3 was rejected, which states that there is a negative moderating impact from the CEO's term on the relationship between corporate sustainability performance and corporate financial performance, as the results did not show any significant impact of the CEO's tenure on the relationship between CSP and CFP. Likewise, hypothesis 4 was rejected. Where the results showed the opposite of what the arguments expected, using two indicators of financial performance, the results showed a slight negative effect of the educational background of the CEO on the relationship between corporate sustainability performance and financial performance, but also without the degree of significance, and on this basis, hypothesis 3 was rejected and the conclusion is that there is no moderate effect of CEOs education on the relationship between CSP and CFP. As for the moderating effect of the CEO's reputation on the CSP-CFP relationship, the results showed the opposite of what was expected by the fifth hypothesis, which states that there is a positive effect of reputation on the relationship between CSP and CFP, using Tobin's Q as an indicator of financial performance, the results showed a negative and significant influence of reputation, and thus, hypothesis 5 was also rejected in this research.

The use of two accounting indicators in this research to express the financial performance may give a simple explanation for the discrepancies in the results. Orlitzky et al., (2003) indicate that there is a close relationship between the CSP and accounting-based indicators more than the CSP and market-based indicators. Orlitzky et al., (2003) justify the high correlation between CSP and accounting indicators by the fact that most accounting returns such as return on assets and return on equity may be subject to the discretionary allocations of managers, in other words, these accounting returns may be able to make important decisions within the company, unlike market standards, which may be more subject to changes and sudden events. The absence of any moderating effect of some individual characteristics of CEOs, such as higher educational background, according to Willers et al., (2020), may be explained by the fact that taking socially responsible steps by managers may be the result of year's experiences rather than specific studies achievements. Thus, higher university degrees may not constitute any source of confidence for stakeholders, and thus, the relationship between corporate sustainability performance and financial performance remains will not be affected. Likewise, the negative moderating effect of reputation may be explained by the fact that these companies may prioritize their financial performance over taking into account the needs of stakeholders, which may undermine the trust of investors and stakeholders in companies, the lack of trust in companies' leaders' policies caused the negative effect on the relationship between CSP-CFP.

Despite the rejection of all hypotheses, this research may provide a new vision for research more into the factors that can interfere in the relationship between CSP and CSR, where the previous economic research focused intensively on cultural factors and organizational factors and ignored the other factors that may interfere in the relationship between CSP and CFP. In this regard, this study tried to investigate the individual characteristics of the high authority as a new aspect to get to the nature of the real relationship between CSP and CFP, which is scarce in the literature. This study adds to the literature a new insight into the relationship between CSP and CFP by studying several market indicators of financial performance compared to the previous literature, which focused extensively on accounting indicators. Despite the support of most of the previous literature for the existence of a relationship between CSP and CFP, this study paves the way for more studies on this CSP-CFP relation by using more market indicators.

5.1 Limitations and Future Recommendation

It must be admitted that there are several limitations within this research. First, this study was limited to only 77 European companies which covered 847 observations over 11 years, which is an insufficient sample compared to some previous studies that studied a large number of observations, and thus, the small sample size may be the reason for not proving any significant relationship within this research due to the fact that statistical tests require researching on a large sample of companies to be representative of a large number of companies. Even though a strength test was conducted to examine the degree of strength of the sample, which proved the effectiveness of 95% of the sample under study, nevertheless, it may not be possible to

validate and generalize the results within this study. Therefore, further research is needed on this topic by selecting a large sample, which will enable us to reach feasible and generalizable results for a large group of companies.

Second, this study focused on a group of European companies classified among the highest revenues. The selection of this sample may be somewhat biased for the reason that the fame and brand enjoyed by most of these companies may be the reason behind the huge revenues and thus high financial performance and, thus, no role of CSP or any moderating factors can be found in this relationship. Therefore, it is difficult to prove the nature of the relationship between CSP and CFP within these types of companies, therefore, research within emerging markets may be the best choice to investigate the relationship between CSP and CFP. Third, this study dealt with only four characteristics of CEOs, these four characteristics may not be sufficient to have an effect on the CSP-CFP relationship and to build a conclusion. Thus, there may be other individual characteristics that may have an impact on the CSP-CFP relationship. Therefore, more research is needed by examining other individual characteristics that may moderate this relationship.

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7. Appendix

7.1Appendix 1 Industries dummies:

.

ind1 byte %8.0g	sic== 1311.0000
ind2 byte %8.0g	sic== 1611.0000
ind3 byte %8.0g	sic== 2023.0000
ind4 byte %8.0g	sic== 2066.0000
ind5 byte %8.0g	sic== 2086.0000
ind6 byte %8.0g	sic== 2099.0000
ind7 byte %8.0g	sic== 2337.0000
ind8 byte %8.0g	sic== 2621.0000
ind9 byte %8.0g	sic== 2653.0000
ind10 byte %8.0g	sic== 2813.0000
ind11 byte %8.0g	sic== 2821.0000
ind12 byte %8.0g	sic== 2834.0000
ind13 byte %8.0g	sic== 2844.0000
ind14 byte %8.0g	sic== 2851.0000
ind15 byte %8.0g	sic== 2899.0000
ind16 byte %8.0g	sic== 2911.0000
ind17 byte %8.0g	sic== 3011.0000
ind18 byte %8.0g	sic== 3149.0000
ind19 byte %8.0g	sic== 3241.0000
ind20 byte %8.0g	sic== 3312.0000
ind21 byte %8.0g	sic== 3448.0000
ind22 byte %8.0g	sic== 3511.0000
ind23 byte %8.0g	sic== 3559.0000
ind24 byte %8.0g	sic== 3572.0000
ind25 byte %8.0g	sic== 3585.0000
ind26 byte %8.0g	sic== 3613.0000
ind27 byte %8.0g	sic== 3643.0000
ind28 byte %8.0g	sic== 3661.0000
ind29 byte %8.0g	sic== 3663.0000
ind30 byte %8.0g	sic== 3669.0000
ind31 byte %8.0g	sic== 3674.0000
ind32 byte %8.0g	sic== 3679.0000
ind33 byte %8.0g	sic== 3711.0000
ind34 byte %8.0g	sic== 3715.0000
ind35 byte %8.0g	sic== 3721.0000
ind36 byte %8.0g	sic== 3724.0000
ind37 byte %8.0g	sic== 3845.0000
ind38 byte %8.0g	sic== 3851.0000
ind39 byte %8.0g	sic== 4212.0000
ind40 byte %8.0g	sic== 4812.0000
ind41 byte %8.0g	sic== 4813.0000
ind42 byte %8.0g	sic== 4911.0000
ind43 byte %8.0g	sic== 4952.0000
ind44 byte %8.0g	sic== 5039.0000
ind45 byte %8.0g	sic== 5065.0000
ind46 byte %8.0g	sic== 5172.0000
ind47 byte %8.0g	sic== 7371.0000
ind48 byte %8.0g	sic== 7372.0000
ind49 byte %8.0g	sic== 7389.0000
ind50 byte %8.0g	sic== 7999.0000
ind51 byte %8.0g	sic== 8092.0000

Education dummies description:

education	Freq.	Percent	Cum.
MBA MSc PhD	435	51.36	51.36
other	412	48.64	100
Total	847	100	

Autocorrelation

Wooldridge test	for autocor	relation in	panel data
H0: no first-ord	er autocorr	elation	
F(1,	75) =	5.342	
Prob	> F =	0.0236	
Wooldridge test	for autocor	relation in	panel data
H0: no first-ord	er autocorr	relation	
F(1,	75) =	1.518	
Prob	> F =	0.2218	

Wooldridge test for autocorrelation in panel data H0: no first-order autocorrelation F(1, 75) = 5.480 Prob > F = 0.0219

Wooldridge test for autocorrelation in panel data H0: no first-order autocorrelation

F(1, 75) = 1.634 Prob > F = 0.2050

Heteroscedasticity

Main model (without interactions)

For Tobin's Q: present heteroscedasticity

Modified Wald test for groupwise heteroskedasticity in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (77) = 3.0e+05 Prob>chi2 = 0.0000

For Price-to-book ratio: present heteroscedasticity

Modified Wald test for groupwise heteroskedasticity in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (77) = 5.2e+05 Prob>chi2 = 0.0000

Model with interactions:

For Tobin's Q: present heteroscedasticity

Modified Wald test for groupwise heteroskedasticity in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i chi2 (77) = 54851.13 Prob>chi2 = 0.0000

For Price-to-book ratio: present heteroscedasticity

```
Modified Wald test for groupwise heteroskedasticity in fixed effect regression model
```

H0: sigma(i)^2 = sigma^2 for all i

chi2 (77) = 6.1e+05 Prob>chi2 = 0.0000

Normality Tests:

Main model:

Tobins Q: non normal


Tobins Q: non normal



Interaction model:

Tobin's Q:



MTBV

Skewness/Kurtosis tests for Normality								
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	joint ——— Prob>chi2			
rintPTB	837	0.0000	0.0000	•	0.0000			



Cross section regression for each year.

Tobins Q

. reg tobinsq esg size leverage rd if year==2009, robust

Linear regress			Number F(4, 71 Prob > R-squar Root MS	of obs) F ed E	= = =	76 4.35 0.0034 0.2767 .60869	
tobinsq	Coef.	Robust Std. Err.	t	P> t	[95% (Conf.	Interval]
esg size leverage rd cons	0033929 2542877 0003512 1.05e-07 6.043716	.0039858 .078018 .0006966 4.21e-08	-0.85 -3.26 -0.50 2.50 4.50	0.397 0.002 0.616 0.015 0.009	01134 4098 00174 2.13e	403 512 402 -08 592	.0045545 0987242 .0010378 1.89e-07 8.718741

. reg tobinsq esg size leverage rd if year==2010, robust

Linear regression				Number o F(4, 71 Prob > 1 R-square Root MSI	of obs) ed	= = =	76 4.69 0.0020 0.3067 .54814
tobinsq	Coef.	Robust Std. Err.	t	P> t	[95%	Conf.	Interval]
esg size leverage rd _cons	0040436 2468881 0009308 7.80e-08 6.018402	.0054024 .0645605 .0007879 4.29e-08 1.216159	-0.75 -3.82 -1.18 1.82 4.95	0.457 0.000 0.241 0.073 0.000	0148 3756 0025 -7.506 3.59	3157 5181 5018 2-09 9345	.0067285 1181582 .0006402 1.64e-07 8.443354

. reg tobinsq esg size leverage rd if year==2011, robust

Linear regression				Number o F(4, 71) Prob > F R-square Root MSE	f obs = = d = =	76 3.92 0.0062 0.3210 .63144
tobinsq	Coef.	Robust Std. Err.	t	P> t	[95% Conf.	Interval]
esg size leverage rd _cons	0069795 2784895 0011 8.80e-08 6.725327	.0055356 .1000387 .0009891 4.37e-08 1.916802	-1.26 -2.78 -1.11 2.01 3.51	0.211 0.007 0.270 0.048 0.001	0180173 4779611 0030721 8.51e-10 2.903332	.0040582 0790179 .0008722 1.75e-07 10.54732

. reg tobinsq esg size leverage rd if year==2012, robust

Linear regression				Number F(4, 71 Prob > R-squar Root MS	of obs) F ed E	= = = =	76 5.87 0.0004 0.3772 .72688
tobinsq	Coef.	Robust Std. Err.	t	P> t	[95%	Conf.	Interval]
esg size leverage rd _cons	0128984 3701195 0012731 1.17e-07 8.770863	.0090457 .1143849 .0012881 5.37e-08 2.261276	-1.43 -3.24 -0.99 2.19 3.88	0.158 0.002 0.326 0.032 0.000	0309 5982 0038 1.036 4.262	9349 1965 3416 2-08 2007	.0051381 1420425 .0012953 2.24e-07 13.27972

. reg tobinsq esg size leverage rd if year==2013, robust

Linear regression	Number of obs	=	76
	F(4, 71)	=	8.53
	Prob > F	=	0.0000
	R-squared	=	0.4300
	Root MSE	=	.71014

tobinsq	Coef.	Std. Err.	t	P> t	[95% Conf.	. Interval]
esg	0106443	.0071854	-1.48	0.143	0249716	.003683
size	4307209	.1079365	-3.99	0.000	6459402	2155017
leverage	0006474	.0015819	-0.41	0.684	0038017	.0025068
rd	1.71e-07	6.79e-08	2.51	0.014	3.51e-08	3.06e-07
_cons	9.748392	2.011998	4.85	0.000	5.736581	13.7602

. reg tobinsq esg size leverage rd if year==2014, robust

Linear regression				Number of F(4, 71) Prob > F R-squared Root MSE	Fobs = = = = = =	76 10.14 0.0000 0.4966 .64189
tobinsq	Coef.	Robust Std. Err.	t	P> t	[95% Conf.	Interval]
esg size leverage rd _cons	0180455 4132094 .0008566 1.58e-07 9.845109	.0063104 .0725596 .0007102 4.15e-08 1.454747	-2.86 -5.69 1.21 3.81 6.77	0.006 0.000 0.232 0.000 0.000	0306281 5578891 0005596 7.55e-08 6.944425	0054629 2685298 .0022727 2.41e-07 12.74579

. reg tobinsq esg size leverage rd if year==2015, robust

Linear regression				Number o F(4, 71) Prob > F R-squared Root MSE	Fobs = = = = = =	76 6.30 0.0002 0.4421 .99016
tobinsq	Coef.	Robust Std. Err.	t	P> t	[95% Conf.	Interval]
esg size leverage rd _cons	0216583 6479988 .0021678 2.41e-07 14.10213	.0134738 .2216089 .0030562 6.80e-08 4.426827	-1.61 -2.92 0.71 3.54 3.19	0.112 0.005 0.480 0.001 0.002	0485242 -1.089874 003926 1.05e-07 5.275287	.0052076 2061233 .0082616 3.76e-07 22.92897

. reg tobinsq esg size leverage rd if year==2016, robust

Linear regression				Number F(4, 71 Prob > R-squar Root MS	of obs) F ed E		76 13.36 0.0000 0.3071 .61515
tobinsq	Coef.	Robust Std. Err.	t	P> t	[95% Co	onf.	Interval]
esg size leverage rd _cons	.0031959 3555392 0001732 1.08e-07 7.560243	.0052133 .0496368 .0002092 3.93e-08 .9534051	0.61 -7.16 -0.83 2.76 7.93	0.542 0.000 0.410 0.007 0.000	007199 454512 000599 3.02e-0 5.65920	92 22 94 98 97	.013591 2565662 .0002439 1.87e-07 9.461279

. reg tobinsq esg size leverage rd if year==2017, robust

Linear regressi	lon	Number of obs	=	76	
•		F(4, 71)	=	13.02	
		Prob > F	=	0.0000	
		R-squared	=	0.3247	
		Root MSE	=	.71241	
	Robust				

_	tobinsq	Coef.	Std. Err.	t	P> t	[95% Conf.	Interval]
_	esg size leverage rd	0042132 406481 0018464 1.06e-07	.0066781 .0616956 .0010472 4.62e-08	-0.63 -6.59 -1.76 2.30	0.530 0.000 0.082 0.024	0175289 5294986 0039344 1.43e-08	.0091026 2834635 .0002416 1.99e-07
	_cons	9.229994	1.265025	7.30	0.000	6.707605	11.75238

. reg tobinsq esg size leverage rd if year==2018, robust

•

Linear regress	sion			Number o	f obs	=	76
				F(4, 71)		=	8.69
				Prob > F		=	0.0000
				R-square	d	=	0.3284
				Root MSE		=	.70356
		Robust					
tobinsq	Coef.	Std. Err.	t	P> t	[95%	Conf.	Interval]
esg	0056299	.0068578	-0.82	0.414	019	3039	.0080441
size	4491362	.0874434	-5.14	0.000	6234	4934	2747791
leverage	0012842	.0011825	-1.09	0.281	00	3642	.0010736
rd	1.08e-07	4.10e-08	2.62	0.011	2.58	e-08	1.89e-07
_cons	9.928515	1.868035	5.31	0.000	6.20	3759	13.65327

. reg tobinsq esg size leverage rd if year==2019, robust

Linear regression				Number (F(4, 72 Prob > 1 R-squar(Root MS)	of obs) ed	= = =	77 9.81 0.0000 0.3132 .91167
tobinsq	Coef.	Robust Std. Err.	t	P> t	[95%	Conf.	Interval]
esg size leverage rd _cons	.0058163 5009375 0012066 1.38e-07 10.25937	.0054438 .1009205 .0010356 4.66e-08 1.891424	1.07 -4.96 -1.17 2.97 5.42	0.289 0.000 0.248 0.004 0.000	0050 7021 0032 4.546 6.48	0357 .189 .709 08 .889	.0166684 2997562 .0008577 2.31e-07 14.02986

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. reg pricetobookratio esg size leverage rd if year==2009, robust

Linear regression				Number of F(4, 71) Prob > F R-squared Root MSE	obs	= = =	76 4.26 0.0038 0.4347 1.6201
pricetoboo~o	Coef.	Robust Std. Err.	t	P> t	[95%	Conf.	Interval]

P			-		[
esg	0091242	.0108732	-0.84	0.404	0308046	.0125563
size	4785797	.1542642	-3.10	0.003	7861738	1709855
leverage	.009387	.0039257	2.39	0.019	.0015593	.0172148
rd	4.57e-07	2.21e-07	2.07	0.042	1.71e-08	8.97e-07
_cons	9.37953	2.18496	4.29	0.000	5.022844	13.73622

. reg pricetobookratio esg size leverage rd if year==2010, robust

Linear regression				Number F(4, 71 Prob > R-squar Root MS	of obs) F ed E	= = = =	76 4.96 0.0014 0.2985 1.7564
pricetoboo~o	Coef.	Robust Std. Err.	t	P> t	[95% C	conf.	Interval]
esg size leverage rd _cons	0007614 6258722 .0084184 4.45e-07 11.94191	.017389 .1836771 .0046115 2.59e-07 2.470343	-0.04 -3.41 1.83 1.72 4.83	0.965 0.001 0.072 0.090 0.000	03543 99211 00077 -7.13e- 7.0161	42 .39 68 08 .87	.0339113 2596305 .0176136 9.62e-07 16.86763

. reg pricetobookratio esg size leverage rd if year==2011, robust

• 105 pi 10000	JOOKI ULIO CSE	5120 100010	BC IU II	ycui ==20	11, 100030	
Linear regress	sion			Number	of obs	= 76
-				F(4, 71)	= 4.32
				Prob >	F	= 0.0035
				R-squar	ed	= 0.2602
				Root MS	E	= 1.5393
pricetoboo~o	Coef.	Robust Std. Err.	t	P> t	[95% Con	f. Interval]
esg	0122648	.0129598	-0.95	0.347	038106	.0135764
size	5889129	.1555083	-3.79	0.000	8989877	2788381
leverage	.0046741	.0034993	1.34	0.186	0023033	.0116515
rd	2.97e-07	1.60e-07	1.86	0.067	-2.10e-08	6.15e-07
_cons	12.66881	2.616985	4.84	0.000	7.450695	17.88693

. reg pricetobookratio esg size leverage rd if year==2012, robust

Linear regression				Number F(4, 71 Prob > R-squar Root MS	of obs) F ed E	= = =	76 5.23 0.0009 0.2675 1.5863
pricetoboo~o	Coef.	Robust Std. Err.	t	P> t	[95%	Conf.	Interval]
esg size leverage rd _cons	0167223 6778492 .002143 2.90e-07 14.45032	.0152082 .1753588 .0033079 1.71e-07 2.889861	-1.10 -3.87 0.65 1.70 5.00	0.275 0.000 0.519 0.094 0.000	0470 -1.027 0044 -5.05e 8.688	465 505 528 -08 103	.0136019 3281938 .0087388 6.31e-07 20.21254

. reg pricetobookratio esg size leverage rd if year==2013, robust

Linear regress	sion			Number F(4, 71 Prob > R-squar Root MS	of obs =) = F = ed = E =	76 4.33 0.0034 0.2960 1.7865
pricetoboo~o	Coef.	Robust Std. Err.	t	P> t	[95% Conf.	Interval]
esg size leverage rd	0087707 8525184 .0024082 4.26e-07 17,20539	.0163134 .2303049 .0038303 1.95e-07 4.140166	-0.54 -3.70 0.63 2.18 4.16	0.593 0.000 0.532 0.032 0.090	0412988 -1.311733 0052292 3.66e-08 8.950132	.0237574 3933034 .0100457 8.15e-07 25.46065

. reg pricetobookratio esg size leverage rd if year==2014, robust

Linear regression				Number c F(4, 71) Prob > F R-square Root MSE	of obs	- - - -	76 9.07 0.0000 0.6163 2.0527
pricetoboo~o	Coef.	Robust Std. Err.	t	P> t	[95%	Conf.	Interval]
esg size leverage rd _cons	0099548 -1.020404 .0219989 4.97e-07 18.84749	.0159317 .2191695 .0069174 1.38e-07 3.257396	-0.62 -4.66 3.18 3.61 5.79	0.534 0.000 0.002 0.001 0.000	041 -1.45 .008 2.22 12.3	7217 7415 2059 e-07 5242	.0218121 5833921 .0357919 7.72e-07 25.34255

. reg pricetobookratio esg size leverage rd if year==2015, robust

3.95e-07 31.55941

1.08e-06 61.61632

_cons

Linear regression				Number F(4, 71 Prob > R-squar Root MS	of obs) F ed E		76 3.60 0.0100 0.4263 5.799
pricetoboo~o	Coef.	Robust Std. Err.	t	P> t	[95% Cor	nf.	Interval]
esg size leverage rd	1313241 -3.062745 .0369572 1.08e-06	.0914344 1.572052 .0219491 3.95e-07	-1.44 -1.95 1.68 2.73	0.155 0.055 0.097 0.008	3136391 -6.197327 006808 2.92e-07	L 7 3	.050991 .0718377 .0807224 1.87e-06

2.73 1.95

0.008

2.92e-07 -1.311364

1.87e-06 124.544

. reg pricetobookratio esg size leverage rd if year==2016, robust

Linear regression				Number F(4, 71 Prob > R-squar Root MS	of obs) F ed E	- - - -	76 31.83 0.0000 0.5779 1.7619
pricetoboo~o	Coef.	Robust Std. Err.	t	P> t	[95%	Conf.	Interval]
esg size leverage rd _cons	.0103866 7959591 .009385 3.71e-07 14.41104	.0170179 .1424759 .0012013 1.29e-07 2.541112	0.61 -5.59 7.81 2.87 5.67	0.544 0.000 0.000 0.005 0.000	023 -1.080 .0069 1.130 9.344	5461 9048 9896 ⊇-07 4209	.0443193 5118701 .0117803 6.29e-07 19.47788

. reg pricetobookratio esg size leverage rd if year==2017, robust

Linear regression				Number o F(4, 71) Prob > F R-squared Root MSE	f obs		76 6.15 0.0003 0.2581 1.6197
pricetoboo~o	Coef.	Robust Std. Err.	t	P> t	[95% Cor	nf.	Interval]
esg size leverage rd _cons	0103327 8608103 .0066271 3.61e-07 17.58159	.0152427 .1858114 .0035484 1.28e-07 3.605993	-0.68 -4.63 1.87 2.82 4.88	0.500 0.000 0.066 0.006 0.000	0407257 -1.231308 0004483 1.05e-07 10.39145	7 3 3 7	.0200604 4903129 .0137025 6.16e-07 24.77174

. reg pricetobookratio esg size leverage rd if year==2018, robust

Linear regress	sion Number of obs	=	76
	F(4, 71)	=	7.35
	Prob > F	=	0.0001
	R-squared	=	0.2330
	Root MSE	=	1.8534
	Pobuct		

pricetoboo~o	Coef.	Std. Err.	t	P> t	[95% Conf.	Interval]
esg	0135558	.0185661	-0.73	0.468	0505756	.023464
size	9932644	.2089278	-4.75	0.000	-1.409855	5766741
leverage	.0085014	.0052295	1.63	0.108	0019259	.0189287
rd	2.60e-07	9.53e-08	2.73	0.008	7.01e-08	4.50e-07
_cons	20.37295	4.388902	4.64	0.000	11.62173	29.12417

. reg pricetobookratio esg size leverage rd if year==2019, robust

2.872726

_cons

15.44848

Linear regress	sion			Number F(4, 72 Prob > R-squar Root MS	of obs) F ed E	= = = =	77 10.76 0.0000 0.1822 2.2712
pricetoboo~o	Coef.	Robust Std. Err.	t	P> t	[95%	Conf.	Interval]
esg size leverage rd	.0117894 8321742 .0094619 3.47e-07	.0115262 .158641 .0046195 1.13e-07	1.02 -5.25 2.05 3.08	0.310 0.000 0.044 0.003	0111 -1.148 .000	.875 419 253	.0347664 5159292 .0186707 5.71e-07

5.38

0.000

9.721805

21.17515

7.2Appendix 2

Table 9. The average marginal effects of the interaction term CSP*Reputation

Average marg: Model VCE	in :	al effects Robust				Number	of	obs	-	761	
Expression dy/dx w.r.t.	:	Linear prediction, predict() c_esg									
1at	:	c_ability	=	-5.7	89072						
2at	:	c_ability	=		0						
3at	:	<pre>c_ability</pre>	=	5.7	89072						
		dy/dx	Delta-me Std. E	thod rr.	z	P> z		[95% Con	f.	Interval]	-
c_esg											
_at					2.24	0.004		0040747		04 2 0 0 0	
1		.00/0804	.00306	5/	2.31	0.021		.0010/1/		.013089	
2		.0008154	.00145	015	0.56	0.574		01421295		.0036603	;
3	ł	0054496	.00446	97	-1.22	0.223		.0142101		.0033109	'

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Summary of ESG and Reputation

Table 11. Predictive margin:

. sum esg ability

Variable	Obs	Mean	Std. Dev.	Min	Max
esg	837	64.32872	15.48484	7.03	109.26
ability	847	.534612	5.789072	-35.42978	33.72937

Regression with CEOs reputation, measured by the ability.

. xtreg d_tobins c.c	_esg##c.c_abi	lity d_size	leverage	rd i.ye	ar, fe vce(rob	oust)
Fixed-effects (within	n) regression		Number	r of obs	=	761
Group variable: c_na	ne	Number	r of gro	ups =	77	
R-sq:	0		Obs p	er group	: min -	1
hotwoon - 0.005	7				ava -	a a
overall = 0.358	5				may -	10
0001011 - 0.550	5				indix -	10
			F(15,	76)	= 7	7.96
corr(u_i, Xb) = -0.	3065		Prob	> F	= 0.0	9000
		(Std.	Err. adji	usted fo	r 77 clusters	in c_name)
		Robust				
d_tobins	Coef.	Std. Err.	t	P> t	[95% Conf.	. Interval]
	0008154	0014515	0.50	0.570	0020755	0027062
c_esg	.0008154	.0014515	1.30	0.570	0020755	.005/005
C_aDITICY	.0000155	.000402	1.50	0.1//	0040347	.0210857
c.c.esg#c.c.ability	0010822	.0006127	-1.77	0.081	0023025	.0001381
d_size	-1.581046	.6223838	-2.54	0.013	-2.820631	3414614
leverage	.0007611	.0004582	1.66	0.101	0001516	.0016738
rd	1.55e-08	4.99e-08	0.31	0.757	-8.39e-08	1.15e-07
year						
2011	.0637739	.0/34656	0.8/	0.388	0825454	.2100933
2012	1124485	.1034029	-1.09	0.280	3183932	.0934963
2013	.0488554	.0785438	0.62	0.536	1075782	.205289
2014	.023294	.0383655	0.61	0.546	0531175	.0997055
2015	238984	.0841214	-2.84	0.006	4065262	0714417
2016	0434419	.051331	-0.85	0.400	1456764	.0587925
2017	0303226	.0776148	-0.39	0.697	1849058	.1242606
2018	0220898	.0699068	-0.32	0.753	1613211	.1171416
2019	.1180295	.0623098	1.89	0.062	0060712	.2421303
_cons	.0374224	.070849	0.53	0.599	1036856	.1785303
ciano u	15050522					
sigma_u	.13539332					
siRwaTe	15070070	(Engetion	of words	ana dua	40 ··· 41	
	.150/69/2	(Traction	ut varia	ice due	LO U_1)	



Plot: The line plot of the interaction term between reputation and CSP

List of companies:

Companies	Country	Sector
ABB LTD	Sweden	Electronic company
ACCENTURE PLC	Irland	consulting and processing services
ADIDAS AG	Germany	Consumer Discretionary Products
AIR LIQUIDE SA	France	Industrial gases company
AIRBUS SE	France	Aerospace and defense company
AKZO NOBEL NV	Dutch	paints and performance coatings companies
ARCELORMITTAL SA	Luxemburg	Steel production company
ASML HOLDING NV	Dutch	Semiconductor company
ASTRAZENECA PLC	British	Pharmaceutical industry company
BARRY CALLEBAUT AG	France	Chocolate and cocoa products company
BASF SE	Germany	Chemicals company
BAYER AG	Germany	Pharmaceutics company
BAYERISCHE MOTOREN WERKE (BMW) AG	Germany	Luxury vehicles company
BEIERSDORF AG	Germany	Manufacturing company
BOUYGUES SA	France	diversified services group
CARL ZEISS MEDITEC AG	Germany	medical technology company
COMPAGNIE DE ST-GOBAIN SA	France	Manufacturing company
CONTINENTAL AG	Germany	Manufacturing company
DANONE SA	France	Food company
DASSAULT SYSTEMES SE	France	telecommunication
DEUTSCHE TELEKOM AG	Germany	telecommunication
E.ON SE	Germany	electric company
ELECTRICITE DE FRANCE (EDF) SA	France	electric company
ENGIE SA	France	electric company
ENI SPA	Italy	Oil and gas industry
EQUINOR ASA	Norway	Oil and gas industry
ERICSSON	Sweden	telecommunication
ESSILORLUXOTTICA	Italy	market ophthalmic

FLUTTER ENTERTAINMENT PLC	Irland	bookmaking holding company
FORTUM OYJ	Finland	electric company
FRESENIUS MEDICAL CARE AG & Co KGAA	Germany	Medical company
HEIDELBERGCEMENT AG	Germany	building materials
INFINEON TECHNOLOGIES AG	Germany	Electronic company
INVESTMENT AB LATOUR	Sweden	investment company
JOHNSON CONTROLS INTERNATIONAL PLC	Ireland	security equipment
KERRY GROUP PLC	Ireland	food company
KINGSPAN GROUP PLC	Ireland	building materials
KONINKLIJKE PHILIPS NV	Dutch	Electronic company
L'OREAL SA	France	care company
LAFARGEHOLCIM LTD	Swiss	building materials
LEGRAND SA	France	electrical devices
LINDT & SPRUENGLI AG	Swiss	chocolatier and confectionery company
LONZA GROUP AG	Swiss	chemicals and biotechnology company
LVMH MOET HENNESSY VUITTON SE	France	luxury goods
MEDTRONIC PLC	Ireland	medical device company
MERCK KGAA	Germany	science and technology company
MICHELIN	France	manufacturing company
NESTE OYJ	Finland	engineering services
NESTLE SA	Swiss	food and drink company
NOKIA OYJ	Finland	telecommunications
NOVARTIS AG	Swiss	pharmaceutical company
NXP SEMICONDUCTORS NV	Dutch	Electronic company
OMV AG	Austria	Oil and gas industry
RENAULT SA	France	Automobile industry
REPSOL SA	Spain	energy and petrochemical company
ROCHE HOLDING AG	Swiss	healthcare company
ROYAL DUTCH SHELL PLC	Dutch	Oil and gas industry
RWE AG	Germany	electric company
SAFRAN	France	technology company
SANOFI SA	France	pharmaceutical company
SAP SE	Germany	Software and technology company
SCHNEIDER ELECTRIC SE	France	energy and automation digital company
SEAGATE TECHNOLOGY PLC	Ireland	Data storage company
SIEMENS AG	Germany	technology company
SMURFIT KAPPA GROUP PLC	Ireland	corrugated packaging company
SOLVAY SA	Belgium	chemicals company
STMICROELECTRONICS NV	France	Electronic company
STORA ENSO OYJ	Finland	Pulp and paper industry company
SUEZ	France	electric company
TE CONNECTIVITY LTD	Swiss	technology company
TELEFONICA SA	Spain	telecommunication company

TELENOR ASA	Norway	telecommunication company
TELIA COMPANY AB	Sweden	telecommunication company
TOTAL SE	France	Oil and gas industry
UNILEVER PLC	UK	consumer goods company
VEOLIA ENVIRONNEMENT SA	France	Environmental services
VOLVO AB	Sweden	Financial services company