Master thesis

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The moderating effects of CSR assurance on the relation between European firm's CSR performance and financial performance

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Abstract

This study investigates the effects of assurance services of corporate social responsibility (CSR) reports on the relation between CSR performance and firm financial performance. Theory and prior literature suggest that reporting high CSR performance by firms has a positive influence on financial performance. This research aims to question whether these benefits are higher if this reporting is audited, and whether Big 4 auditors are more favorable in this relation than non-Big 4 auditors. Financial performance is examined on two dimensions: firm profitability and firm evaluation. Using a sample of European listed entities from 2000-2020, no significant effect is found between CSR and financial performance and no effect of assurance on this relation. There is also no decisive indication that this effect is stronger for audits by Big 4 accountants. This implies that on average firms experience no additional benefits from assuring CSR reports, by Big 4 or otherwise, given CSR performance. The implication of these findings for firms is that non-mandatory CSR reporting assurance should not be pursued for gaining economic advantages.

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Introduction

Individuals, organizations and governments, as well as society as a whole, is becoming increasingly aware that prioritizing social responsibility is an essential part of their policies and behavior. This has led to increased pressure from various stakeholders on firms to improve on socially responsible efforts and communication in this respect. A mechanism for measuring and communicating these efforts is CSR reporting. CSR reports usually disclose the entities values and governance model. Another crucial aspect is the link between an organization's strategy and commitment to corporate social responsibility. Whilst there are other tools for communicating this message, CSR reporting distinguishes itself by targeting all (financial market) participants (Meech & Bayliss, 2021).

Some form of externally prepared assurance statement serves the purpose of enhancing the status of CSR reporting by the inclusion of an independent opinion. This independent opinion is designed to increase the confidence of report users in the reliability of the reported information. As approaches become more developed, and demands of report users more sophisticated, organizations which fail to obtain assurance for their reports are likely to face issues of credibility (Owen, 2010).

However, according to the survey of Corporate Responsibility Reporting (KPMG, 2015) not nearly all firms invest in independent assurance of CSR reporting. One of the issues of widescale CSR reporting assurance is the lack of globally harmonized CSR-related reporting standards. The number of ESG regulations and standards globally have nearly doubled in the past five years. The various reporting frameworks are led by the *Group of Five[1]* standards setting organizations. There are currently over 600 ESG reporting provisions globally with many having different interpretations of corporate responsibility. The high number of guidelines about ESG information and recommended disclosures strain company resources to focus on quality ESG disclosure, and make sustainability disclosure more difficult to audit (EY, 2021).

In order to ensure firm's transparency on corporate responsibility, the European Union (EU) passed the non-financial reporting directive (NFRD) in 2014 which mandated non-financial disclosures for large public listed entities as of 2017. These efforts are to be expanded upon in the upcoming years as the EU has proposed the corporate sustainability reporting directive (CSRD). This will vastly increase the scope of affected firms from 11,700 to 49,000 and seek to broaden the types of information these companies should disclose on. Specifically, the CSRD requires forward-looking and retrospective information covering various horizons and more high quality over quantity data. Arguably most importantly, the EU will demand mandatory third party assurance on CSR reporting, in contrast to voluntary assurance which is currently the case. Starting with limited levels of assurance, future legislation might increase this to reasonable levels of assurance.

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[1] The Group of Five refers to several large organizations who provide guidance and frameworks on sustainability reporting and consists of CDP, CDSB, GRI, IIRC and the SASB. The IIRC and SASB merged in June 2021 to create the Value Reporting Foundation (VRF).

This transition from mandatory to voluntary disclosure means that firms no longer use CSR reporting as a way of gaining competitive advantage, but rather to comply with regulation. Mandatory audit of CSR reporting demands firms to invest in assurance services in order to comply.

Theory and prior literature points out that if firms can utilize CSR performance and disclosure in order to improve stakeholder interaction and achieve competitive advantage, a higher CSR performance can have a positive effect on financial performance. However, the implications of auditing CSR reporting has not been covered extensively in scientific literature. Therefore, the introduction of mandatory third party assurance requires that more scientific research should be performed on its benefits for both firms, stakeholders and society. Additionally, as European PIE's will face the consequences of mandatory CSR assurance, it is of relevance to companies to understand the impact that auditing of their statements has on stakeholder relations. This could help decide on how much of a firm's resources should be dedicated to hiring third parties for assurance services. This study therefore builds on the existing knowledge on the relation between CSR performance and financial performance by examining whether there is a moderating effect for CSR assurance in this relation. The research question is thus formulated as:

"Do firms which have audited CSR reports show a stronger relation between ESG scores and financial performance?"

This study aims to answer the stated research question by looking at a sample of European PIE's in the period from 2002 up and till 2020. The final sample contains over 5,500 firm year observations and nearly 750 unqiue firms. CSR is used as an independent variable in combination with various proxies for firm performance as the dependent variable. Firm performance is examined on two different dimensions, namely firm profitability which is proxied by ROE and ROA, and firm evaluation which is measured with market value and Tobin's Q. Audit is used as a dummy variable and an interaction term between audit and CSR performance serves as the variable of interest. Furthermore, another model is created for whether the assurance was provided by a Big 4 accountant or other parties. With this, another interaction term is created to test whether the potential incremental benefits of auditing are stronger in the case of a Big 4 assurance provider.

The result indicate that for the sample of firms, CSR performance on average had no significant effect on firm profitability or evaluation. Furthermore, auditing does not seem to moderate this relation. There is some indication that the effects of auditing vary between Big 4 and non-Big 4 firm, but these coefficients are not economically meaningful. Hence, these findings show us that for European firms, no financial benefits can be expected from investing heavily in higher ESG performance and auditing of CSR disclosure. One possible explanation for this is that because of the high amounts of non-financial disclosure and auditing in Europe present, it is more difficult for firms to achieve competitive advantage by doing this. This could also imply that stakeholders do not value third party assurance highly, as this type of assurance is still relatively new and not as established as financial reporting assurance. These results are inconsistent with what prior literature has found.

These results contribute to existing knowledge on CSR disclosures and assurance by examining a setting which specifically has historically had a high level of CSR performance and rate of auditing over the global and US average which is used in other studies on the topic. This could potentially explain why the examined effects in the EU differ from other sample groups. The results suggest that there are no incremental benefits to be gained by auditing CSR reports for firms which have a ESG score. This result also has implications for firms. With the introduction of the CSRD in the EU, firms should be cautious with investing too many resources in the auditing of CSR reports, as the benefits of these audits are limited.

Of course, this study is subject to several limitations. Firstly, due to high amounts of missing observations in the dataset, the final sample contained predominantly firms which had audited CSR reports which could bias the results. Big 4 also had a relatively high mean, but this is to be expected given the size of the Big 4 organizations. Secondly, this paper makes no distinction between types of assurance. It is possible that firms that get assurance of a higher level might actually experience benefits whereas firms with lower levels of assurance don't. Finally, a high amount of missing observations of the CSR assurers name meant that the valid amount of observations for the second model was significantly lower than in the first model. This could have been remedied by looking at the CSR reports manually but was not performed due to time constraints.

The following section of this paper provides the literature review which will extensively cover prior literature on the topic. Subsequently, the hypotheses will be constructed and evaluated in the section after. Then, the sample of firm-year observations employed for the statistical analysis and the OLS regression models and variables will be discussed in the methodology section. Finally, the results of the statistical regression will be presented in the results followed by an interpretation and suggestions for future research in the final section.

2. Literature review

This chapter introduces the two topics corporate social responsibility (CSR) and corporate financial performance (CFP). It provides a literature review on these two topics, followed by an explanation on how these are related to each other.

2.1 Corporate Social Responsibility

Corporate social responsibility can be defined broadly as the responsibilities of a business to society. Though in the past, researchers have been challenged both theoretically and empirically to provide clarity to this construct (Brown & Forster, 2013). CSR can be examined from various areas of responsibility: economic, legal and ethical, which yields the *Three-Domain Model of CSR* (Schwartz & Caroll, 2003) as presented in Figure I which demonstrates how various domains of CSR interrelate to each other.

Firstly, the economic domain captures activities intended to have direct or indirect positive economic impact on the corporation in question. Secondly the legal category pertains to firm's responsiveness to legal expectations mandated and expected by society. Firms aim to be compliant and avoid litigation, and anticipate law and regulation. Thirdly, the ethical domain refers to ethical responsibilities which businesses have as a result from expectations of the general population and relevant stakeholders. Capturing these domains in a Venn diagram illustrates the overlapping nature of domains and exposes seven categories of CSR (Schwartz & Caroll, 2003).

Three mainstream economic theories, which have similarities and are interrelated, have been employed in the CSR literature in theoretical predictive motivations of CSR practices. These three theories are legitimacy theory, stakeholder theory and institutional theory (Fernando & Lawrence, 2014).

Legitimacy theory is a widely used argument for explaining CSR reporting practices of organizations operating in the developed world (Islam, 2017). A broadly accepted definition to legitimacy comes from Suchman (1995) who considers that: "Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions". In other words, legitimacy theory is a mechanism that supports organizations in implementing social and environmental disclosures in order to fulfil their social contract with society (Burlea & Popa, 2013). Research has found that there is a predictive power of legitimacy theory to environmental reporting practices in businesses (O'donovan, 2002; Eugénio et al., 2012).

Furthermore, stakeholder theory is a valuable topic in understanding business' CSR and reporting practices. The relation between CSR and stakeholder theory has had varying views in the past. Some scholars assumed CSR as a subset of stakeholder theory (Garriga & Melé, 2004), others contemplated them as competing concepts in a similar field (Brown & Forster, 2013; Schwartz & Caroll, 2008) or discussed their complementarity (Roberts, 1992; Russo & Perrini, 2010). However, many scholars did not carefully consider this association and simply

based their literature on one of the two concepts, whereas a more accurate view would be that stakeholder theory and CSR are in fact distinct topics with overlapping elements.

Whilst both stakeholder theory and CSR imply an inherent responsibility which organizations have towards society and communicates, the main difference comes to scope and perspective. Stakeholder theory presents a wide range of corporate responsibility within the operations of a company, whereas CSR dictates a much wider orientation and looks at the entirety of society to which companies have duties (Freeman & Dmytriyev, 2017). The relation between CSR and stakeholder theory is illustrated in figure II.

This is reaffirmed by the risk that stakeholder theory carries, which is that corporate directors would share the interest of stakeholders who are interested only in maximizing firm profits and as such disregard business operations' harm to surrounding areas. This risk is mitigated by ensuring that all stakeholders are represented in company boards (Brin & Nehme, 2019). Nevertheless, though stakeholder theory and CSR are distinct topics, the commonality of responsibility to society, whether seen locally or as a whole, indicates that stakeholder theory serves as a valuable theory which elaborates the drive towards CSR by companies.

Lastly, we examine institutional theory and its predictive capabilities on CSR activities by firms. Institutional theory is built on the assumption that companies are influenced by other organizations and institutions and can be used to examine how companies respond to these external pressures (Scott, 2005). According to Carpenter & Feroz (2001), institutional theory views organizations as operating within a social framework of norms and values and which constitute acceptable economic behavior. This is in line with the view of Brammer et al. (2012) which suggests that through the lens of institutional theory, the 'R' in CSR is evidently shaped by legal, customary, religious or defined institutions, rather than the voluntary and responsible characteristic which is often attributed to CSR practices. Regardless, institutional theory possesses the inherent capability to help explain CSR practices (Campbell, 2007).

For the purposes of this research, it is crucial to attain an appropriate measure of the level of CSR performance achieved by the population of companies. As CSR is examined through economic, legal and ethical perspectives, and motivated by stakeholder and societal engagement, an appropriate measurement of CSR performance must capture these domains from the perspective of stakeholders and society. To this end, CSR performance is most often quantified on the basis of environmental, social and governance (ESG) ratings. ESG performance scores are created on the basis of evaluating available CSR reports made to be publicly accessible. ESG scores document the degree of impact that companies have with respect to ESG activities and is used by professional stakeholders to reduce information asymmetry (Usman et al., 2020). Different ESG rating approaches yield obvious distinctions in CSR performance (Dorfleitner et al., 2015). According to Gjølberg (2009) the aim of a CSR index is to measure corporate responsibility practices in the broadest sense, including sustainability reporting.

2.2 Corporate Financial Performance and Firm Evaluation

The neoclassical theory of the firm, which can be found in any basic textbook of economics, states that the only objective of the firm is single period profit maximization (Anderson, 1982).

With the influence of industrial organization economics by Porter (1981) researchers have long used primarily accounting-based profitability ratios, including return on assets (ROA), return on equity (ROE) and return on sales (ROS) as a measure of firm's financial performance (Hoskisson et al., 1999). The introduction of finance theories and market-based performance measures into management research were in the mid-1980s (Bromiley, 1990) and with the rise of shareholder activism in the early 1990s, many organizations started to adopt maximizing shareholder value as their stated objective even determining executive compensation (Useem, 1993). This change from profit-oriented focus to a shareholder satisfaction focus made market-based performance measures more widely adopted for firms (Hoskisson et al., 1999). It is important to note that CFP is not a single unidimensional construct and that accounting profitability and market performance represent distinct economic dimensions with little economical overlap. As such it is inappropriate to combine accounting and market measures into a single firm performance measure (Gentry & Shen, 2010).

A large number of factors have been found to impact the operating performance of companies including intangibles, corporate governance, cash on hand, leverage, firm specific risk, size, growth and tangibility (Safarova, 2010) making it important to control for these variables in firm performance.

Ever since Friedman (1970) challenged that "a corporation's responsibility is to make a profit", the CSR-CFP relation has been measured on the basis of the most commonly applied performance measures being net income, earnings per share, return to investors, return on equity. The application of one performance measure is does not lend enough insight, so several measures must be adopted. The five most commonly accounting-based measures used to determine the CSR-CFP relation being size (as a logarithm of total assets), ROA, ROE, asset age and 5-year ROS (Griffin & Mahon, 1997).

Callan & Thomas (2009) combine the use of ROA and ROS to capture firm operational performance and ROE capturing financial performance with Tobin's q to capture capital market performance, giving a balance of accounting-based and market-based CFP measures. Tobin's q is defined as the ratio of market value to the replacement cost of the firm thus combining capital market data with accounting data which makes appropriate measure of market-based firm performance (Wernerfelt & Montgomery, 1988; Montgomery & Wernerfelt, 1988). For the purposes of this research, market-based measures – Tobin's q and market value – will be referred to as firm evaluation, whereas corporate firm performance refers to the accounting based measures ROE and ROA. These serve as separate dimensions for analysis purposes.

2.3 The CSR-CFP relation

The association between CSR and CFP has been debated abundantly over the years in scientific literature and is crucial to understand for investigating the moderating effect of external audits of CSR reporting. Waddock & Graves (1997) summarize the three types of associations: negative, neutral and positive.

Firstly, the negative association argues that firms incur a competitive disadvantage by performing responsibly, because they are incurring costs that could otherwise be avoided, or

should be borne not by the firm but by others (e.g. governments or consumers). This line of thinking comes from neoclassical economics and considers few economic benefits to CSR (Auperlle et al., 1985).

Secondly, the neutral association has states no relationship, negative or positive. Proponents of this line of reasoning (e.g. Alexander & Buchholz, 1978; Ullman 1985) have argued that the number of intervening variables between social and financial performance are too numerous, and as such, there should be no reason to expect a relationship to exist other than by chance.

Thirdly, the perspective which is possibly most agreed upon today is the theory that reasons there is a positive relationship between CSR and CFP. This argument is based on the tension which exists between a firm's explicit costs and implicit costs[2] to stakeholders. Theory predicts that a firm that intends to lower its implicit costs by socially irresponsible actions, will as a result be met by higher explicit costs, which will result in a competitive disadvantage. This theory is compatible with the view that actual costs for responsible firm behavior are in fact minimal when compared to potential benefits. One example is lower cost for acquiring effective labor by companies known to be favorable to work for (Moskowitz, 1972). Another theory is that high levels of CSR are indicators of superior management skill, and this leads to lower explicit costs (Alexander & Buchholz, 1978). This perspective tends to be supported by high indicators of good management in combination with strong social performance over the years and has become more favored over time. Revising the literature and the empirical evidence reveals that the CSR-CFP relation has evolved from a nil or low correlation to a positive correlation over time, in which CSR positively impacts CFP in the long run, mainly when it is focused on primary stakeholders but with an insurance effect when CSR has a wider orientation (Bosch-Badia et al., 2013).

Two views exist on the direction of causality in this association: slack resources theory and good management theory. Slack resource theorists argue that better financial performance can potentially result in availability of slack[3] resources which provide opportunities for investing in social performance domains. This suggests that firms that perform well in the market have more sophisticated means at their disposal to ensure responsible and sustainable behavior. Furthermore, there is the good management theory, which alternatively argue a high correlation between good management practices and CSR because attention to CSR domains improves stakeholder relationships (Waddock & Graves, 1997).

The association between CSR and CFP is a complex one in that there are many potential contextual variables which mediate this relation. There is evidence to suggest that for instance, growth opportunities (Babajee et al., 2021), corporate governance (Ying et al., 2021), firm reputation (Bahta et al., 2021), industry specific characteristics (Jeong, 2021), financial leverage (Oware & Mallikarjunappa, 2019) and marketing capabilities (Yim et al., 2019) amongst others can mediate this relation. Ye et al. (2021) review and compare the existing

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[2] In this setting, explicit costs relate to actually made expenses (e.g. payments to bondholders) whereas implicit costs are those that are easily hidden, difficult to avoid and not simple to measure (e.g. product quality costs or environmental costs).
[3] In a business-economic setting, slack resources are recognized to be spare capabilities and assets of the organization that are underutilized and as such can be deployed for various purposes.

literature aiming to construct an integrated framework of mediating and moderating variables as presented in figure III. This framework categorizes indicators into three categories: micro, meso and macro levels in order to analyze mediating and moderating effects.

In summary, we utilize CSR in referring to the responsibilities corporations have towards society as a whole, spread over an economic, ethical and legal domain. Firms engage in CSR in order to create value for all stakeholders, aside from shareholders alone. Entities will engage in activities and that are desirable based on social norms and values and refrain from activities which are deemed inappropriate and improper in order to be seen as legitimate. Companies can also portray responsible behavior on the notion that competition around them maintain socially valued principles and due to pressure from external parties. Moreover, CFP revolves around profit and market performance and is based on the neoclassical economic theory that firm's main goal is to maximize profit. However, in contrast to classical economics, we note that another main goal of corporations is to maximize shareholder value which does not necessitate higher profits. Therefore, CFP can be measured both in terms of accounting performance as well as market performance yielding distinct results. Finally, responsible and socially desirable behavior by the firm could improve on firm finances and operations. This is due to the tradeoff between explicit and implicit costs that companies experience. As a result, improved CSR and social performance might lead to improved CFP. However, this association is complicated by high variability and thus difficult to quantify.

3. Hypothesis development

This chapter builds on what has been mentioned in the previous chapter in order to develop the hypotheses employed in this research for answering the research question. It will provide arguments to support the predictions and states the hypotheses that will be tested.

3.1 CSR reporting and external assurance

As society and stakeholders become more critical of what firms are and are not doing in terms of social performance, interest on clear communication on this subject increases. Since around the 1970's, the opinion that corporate management should inform stakeholders on their CSR efforts by means of social disclosure gained support (Linowes, 1972). By the 1980's voluntary, non-financial, reporting practices to inform stakeholders on social performance were practiced by the largest firms. Although substantial work for developing social reporting models was still required (Anderson & Frankle, 1980).

Communicating CSR efforts carries certain advantages for firms, such as: increased awareness and transparency; drawing attention to weaknesses in CSR corporate strategy; involvement of stakeholders and cross-sector cooperation. Quality CSR reports depend on fulfilling four aspects: credibility, completeness, social responsibility and appropriate form (Moravcikova et al., 2015). Effective CSR communication implies that stakeholders can comprehensively appreciate CSR impacts as a result of firms disclosing information (Michelon et al., 2015). An adequate reporting model and proper application is necessary for CSR reporting practices (Flower, 2015).

In order to increase the credibility of CSR reporting, the guidelines suggest hiring external assurance parties (Garcia-Torea et al., 2020). However, due to deficient regulation, the rate of external audits for CSR reports is not as high as it should be and moreover, external assurance reports are often prepared by providers not part of the public accounting profession (Jones III & Jonas, 2011). Determinants of CSR assurance can be categorized as external or firm-specific characteristics and these include: governance and regulatory environment at national level, organizational determinants (e.g. firm size, firm attitude) and an organization's operating context. CSR reporting can be rewarded with higher firm value due to the attainment of assurance for CSR reports (Uyar et al., 2021). Given this information, the following hypothesis is formulated:

H1 – CSR audits by assurance providers improves the benefits of CSR performance on profitability for firms.

This prediction is based on the added credibility which CSR reports provide to investors and other stakeholders when audited by a third party, as firm management is incentivized to report high levels of CSR performance, for instance when managerial pay is explicitly tied to sustainability (Kim et al., 2019). Companies perceive benefits from voluntary audits such as upgraded credit ratings by sending a signal of trustworthiness, whilst companies that dispense with being audited sends a negative signal (Lennox & Pittman, 2011). Third party assurance adds value to both management and stakeholders simultaneously (Manetti & Toccafondi, 2012) and as such, this paper predicts a positive impact for CSR performance on CFP for audited

reports which is in line with prior research on the topic (Gallego-Álvarez & Pucheta-Martínez, 2021; Kim et al., 2019).

This research aims to capture the influence of CSR assurance on multiple dimensions. The first dimension being firm performance. The second dimension is firm evaluation. Whilst firm performance can be measures by earnings and other accounting-based measures, we classify market based measures as firm evaluation. Therefore, the first hypothesis is expanded upon with the following second hypothesis.

H2 – CSR audits by assurance providers improves the benefits of CSR performance on firm evaluation for companies.

3.2 Quality of CSR assurance and the Big 4

Although CSR reporting and assurance practices have been rapidly developing and improving for many years now, they are still in their infancy (Gillet-Monjarret, 2015). Problems arise as a result of the absence of disclosure requirements (Christensen et al., 2019) and little relevant guidance for auditors (Cohen & Simnett, 2015) from legislators and standard setters. Particularly when compared to financial statement assurance. Unlike the financial statement audit, CSR assurance may be performed by a range of independent parties and consultants without cooperation of a certified public accountant or national equivalent. Less than half of assurance reports are audited by the largest accounting firms (Mock et al., 2007).

O'Dwyer & Owen (2005) point out that accountants and consultants utilize distinct approaches for providing assurance, with the former adopting cautious and meticulous approaches at lower levels of assurance whilst consultant assurors take an evaluative approach with higher levels of assurance. With a focus on aiding corporate strategic direction, this brings threats to independence. As such CSR assurance reports produced by established accounting firms ultimately seem more useful and reliable to stakeholders. Especially the Big 4[4] audit firms are more likely to disclose procedures employed in providing sustainability reporting assurance and were less likely to hand out positive assurance statements (Mock et al., 2013). Leaning on DeAngelo (1981) and subsequent literature that auditor size, namely Big 4, increase audit quality in financial statement setting, this paper predicts that the perceived effects of CSR audits are distinct for Big 4 accounting firms. As such, the third hypothesis of this study is formulated:

H3 – The benefits of CSR audits on the CSR-CFP relation are higher for audits performed by the Big 4.

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[4] Big 4 audit firms refers to the four largest and most established accounting firms worldwide namely: Deloitte Touche Tohmatsu Limited, Ernst & Young Global Limited, PriceWaterhouseCoopers and KPMG.

4. Methodology

This chapter will discuss the methodology that will be applied for answering the research question. To start, it will explain which data is used, and how a sample is drawn from the population. Then, the variables used in the statistical analysis will be presented. Finally, the statistical methods applied to the data in order to attain the results and test the hypotheses will be considered.

4.1 Data and sample

The data utilized in this paper is recovered from the Eikon Refinitiv Database. The database tracks both information on firm financials as well as CSR performance, captured in the Thomson Reuters ESG Scores (formerly: *ASSET4*) which measures CSR performance based on ESG scores for publicly listed firms. Also, it contains data on whether firms had external assurance to their sustainability reports and which parties perform these audits. Thomson Reuters provides one of the most comprehensive databases due to in depth analysis of available sustainability reporting, therefore proving excellent for the purposes of this study.

From this database, data is gathered on CSR, CFP and external assurance practices for all publicly listed firms in the EU in order to draw a sample. Differences in institutional settings may help explain inconsistent findings with regards to CSR disclosure and the EU offers a unique research opportunity due to the its institutional setting (Mittelbach et al., 2021). The policy of the European parliament makes a big contribution to this end, as they passed the directive 2014/95/EU NFRD in 2014 resulting in large listed companies and other public interest entities (PIE's) which previously did not engage in CSR reporting or did so poorly to increase the application and quality of their reporting (Korca & Costa, 2021). In addition, European firms have a higher rate of external assurance practices as compared to other countries (Mock et al., 2007). The next step in EU legislation is to instate the CSRD which will lead to more firms being mandated to publish on environmental, social, governance and other responsibilities as well as mandating firms to have (limited) third party assurance of their CSR reports. Therefore, taking this into consideration, the EU provides an excellent research setting and sample.

Furthermore, data is available from years 2000 up and till 2021. However, considering that financial statements can't have been audited at the time of gathering the data, 2021 is excluded from the sample. Additionally, 2000 and 2001 contain no useful data because of the large amount of missing CSR information and are therefore removed. This leaves data available from the period 2002 up and till 2020.

Although the EU directive mandated sustainability reporting from fiscal year 2017, many firms starting adopting CSR reporting strategies after 2014 in anticipation of the regulatory change in 2017 (KPMG, 2015). Also, during this period, CSR reporting quality and information provision was significantly enhanced in part due to regulation and continuously improving CSR endeavors (Gulenko, 2018; Hamed et al., 2021; Jian et al., 2017). Therefore, this period results in more complete CSR information and therefore more accurate ESG scores. Additionally, CSR scores are based on a relative benchmark comparing all firms worldwide,

in the period 2014-2020, more firms globally reported CSR information and therefore the benchmark became more accurate. As such, the period 2014-2020 offers in general a more accurate and reliable sample of ESG data. However, taking missing observations into account, the relative amount of non-audited CSR reports in the period 2014-2020 is significantly lower than in the period of 2002-2020, as more firms in the 2014-2020 sample had audited CSR reports. This results in a less accurate comparison between non-audited and audited CSR reports. Therefore, two distinct samples are employed for the purposes of this research. Firstly, analysis will be performed for the period 2002-2020, then the same equations will be performed for the period 2014-2020.

A total of 55,264 firm-year observations are available for EU listed firms in the period 2002-2020. However, 21 firms that are listed on EU stock exchanges but not legally headquartered in the EU are deleted from the sample, because they don't fall under EU legislation. Firms that operate in the financial industry are excluded due to different firm characteristics which could bias the findings. Therefore, another 406 firms are excluded from the sample. Also, observations with missing values are excluded. This leads to a total sample of 5,516 firm-year observations. Of these 2,585 firm-year observations are from the period 2002-2013. Table 1 shows the sample selection.

Table 1

Sample deductions	Firm year observations	Unique firms
Full sample of EU listed entities	**55,264**	**2,512**
Less: firms on EU stock exchanges which are located outside of the EU	-462	-21
Less firms classified as financials by industry	-8,998	-406
Subsample of EU listed entities	**45,804**	**2,085**
Less: observations from 2000, 2001 and 2021	-6,246	-
Less: observations with any missing values	-34,042	-1,339
Subsample of EU listed firms with available data	**5,516**	**746**
Of which 2002-2013	2,585	400
Of which 2014-2020	2,931	746

This table outlines the sample selection procedure. The first column shows the amount of firm year observations whilst the second columns displays the unique firms in the sample. Starting from all EU listed entities from the period 2000-2021, at 55,264 firm year observations, we deduct unsuitable firms and observations to arrive at the total sampling population of 5,516 firm year observations.

Table 2 provides information of the distribution of observations of the final sample. It shows the total number of observations per firm industry group per year. We note from this that the largest industries in our sample are the consumer discretionary and industrials sectors. The smallest amount of observations in the sample come from the health care and telecommunications industries. The amount of firm-year observations has generally increased and more recent years contain more firm-year observations.

Table 2

Firm industry	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Basic Materials	12	12	20	27	26	22	29	32	31	32	32	34	34	35	35	42	53	57	57	622
Consumer Discretionary	30	33	42	47	48	33	42	41	42	44	40	42	47	54	60	69	96	111	118	1,039
Consumer Staples	14	14	17	24	24	23	18	24	22	25	27	27	29	28	27	32	46	48	51	520
Energy	9	9	14	19	19	21	23	25	29	24	27	24	25	24	24	27	29	31	35	438
Financials	26	27	43	50	53	33	41	44	51	41	44	44	50	53	57	64	78	91	104	994
Health Care	12	13	14	18	19	12	16	19	14	13	12	13	14	16	18	23	33	38	44	361
Industrials	30	30	43	49	51	39	47	55	52	51	48	54	57	60	64	74	120	140	157	1,221
Real Estate	8	9	15	17	19	10	13	12	15	16	17	20	19	20	22	28	39	48	51	398
Technology	5	5	5	7	7	6	7	6	7	7	7	8	8	8	9	11	15	21	29	178
Telecommunications	13	13	15	18	18	12	15	18	20	21	20	20	20	21	20	24	26	28	32	374
Utilities	7	7	11	17	18	14	18	20	21	20	21	20	21	20	24	26	33	35	37	390
Total	166	172	239	293	302	225	269	296	304	294	295	306	324	339	360	420	568	648	715	6,535

This table provides an overview of the distribution of firm year observations by industry. In the rows, all of the different industries included in the dataset are presented, with the final row representing the total for all firm industries. The columns represent the year of the observation, with the final column being the total of all years combined.

Furthermore, table 3 provides an overview of how many CSR reports were audited or non-audited per year during the sample period. We note a distribution of roughly one to three non-audited as opposed to audited CSR reports in our sample. From 2002 up and till 2006, most reports were non-audited. From 2007 onwards, the majority of observations per year had an audited CSR report. In 2020, for all observations in our sample, the CSR reports had been audited. For the subsample of period 2014-2020, we note a total of 3,247 audited CSR reports compared to 127 non-audited CSR reports. However, in the period 2002-2013 the distribution was much more equal with 1,709 audited reports compared to 1,452 non-audited reports.

Table 3

Assurance	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
CSR report not audited	146	145	193	221	212	93	113	117	101	57	32	22	20	17	24	24	25	17	0	1,579
CSR report audited	20	27	46	72	90	132	156	179	203	237	263	284	304	322	336	396	543	631	715	4,956
Total	166	172	239	293	302	225	269	296	304	294	295	306	324	339	360	420	568	648	715	6,535

This table shows the distribution of audited and non-audited CSR reports per year. The rows represent whether or not the CSR report of the firm that year was audited or not, whereas the columns show the year.

4.2 Variables

4.2.1. Dependent variable

The dependent variable in this research is proxied on two dimensions by using both accounting-based performance metrics and firm evaluation. Specifically, accounting-based performance is proxied by using ROA and ROE, whereas firm evaluation is measured by Tobin's Q (Q) and market value of the firm (MV). Using several metrics for each dimension gives more depth to the definition as to analyze different outcomes. The formula's for each proxy are presented in table 4.

4.2.2 Independent variable

The independent variable is CSR performance (CSR). The ESG data is composed of 186 CSR factors divided over 10 unique categories: emissions, innovation, workforce, human rights, community, product responsibility, stakeholders, CSR strategy, resource use and management. These lead to a separate score for environmental, social and governance performance based on the following distribution (Refinitiv, 2021):

- Environmental pillar score: emissions, innovation and resource use.
- Social pillar score: workforce, human rights, community and product responsibility
- Governance pillar score: stakeholders, CSR strategy and management.

Lastly, an overall ESG score is awarded based on the separate scores. The ESG score is a weighted average of the above categories which accounts for factor importance by sector. For the purposes of this research, a general CSR approach is considered and therefore the overall ESG score is used as a measure of CSR performance. The ESG score adopts a percentile rank scoring methodology to calculate the 10 category scores based on rank and this not sensitive to outliers. The industry group is used as the benchmark. The score ranges from 0-100 and higher values present better relative performance.

4.2.3 Moderating variables

The variables of interest in this study are moderating variables. In order to assess whether firms that get independent assurance on their social reporting procure more financial benefits for their CSR performance, a moderating variable is used (AUDIT). This variable is a dummy variable which takes the value 1 if a certain company had their CSR report assured in a certain year and 0 if otherwise. The level of assurance (i.e. limited or reasonable) is not considered separately. The dummy variable is contained in the Eikon Refinitiv Database.

Likewise, in order to test whether the benefits of CSR assurance are higher for companies who get an independent auditor's report from one of the renowned Big 4 accounting firms, a moderating variable is used (B4). This moderating variable is similarly a dummy variable which takes the value 1 if the independent auditor's report is provided by the Big 4 and 0 otherwise. The dataset from Eikon Refinitiv Database contains the names for parties providing external assurance on CSR reports. However, some of the Big 4 firms are mentioned several times by different values (e.g. Deloitte is mentioned as Deloitte Touche Tohmatsu Ltd., Deloitte GmbH etc.). Therefore, a column is added to the dataset to provide a value of 1 if the value of auditor name contains either "EY", "Ernst & Young", "Deloitte", "DTTL", "PwC", "PricewaterhouseCoopers" or "KPMG" and the value 0 if otherwise.

4.2.4 Control variables

In line with prior literature on the relation between CSR and CFP, factors which potentially affect CFP are controlled for (Gallego-Álvarez & Pucheta-Martínez, 2021). Firstly, firm size (SIZE) is considered as a control variable. A positive association is expected between firm size and performance. Firm size is measured as the natural logarithm of total assets. In addition, leverage is used as control variable. Leverage (LEV) is incorporated into the model and calculated as the ratio between total debt and assets. Rapidly growing firms are can show higher financial performance, so a control variable is also used for firm growth (GRTH) calculated by change in total assets relative to prior year (Clarkson et al., 2011). Furthermore, an industry dummy (IND) is added, as CSR areas and stakeholder engagement are can differ across a wide range of industries (Michelon & Rodrigue, 2015). This is based on the Thomson Reuters Business Classification and assigns firms to one of the following industries: industrials, consumer discretionary, telecommunications, consumer staples, financials (excluded from sample), health care, energy, technology, basic materials and real estate. Lastly, year-specific (YEAR) effects are controlled for by using a dummy variable for the observation year.

4.2.5 Variable modification

An overview of all variables employed are presented in Table 4. Continuous variables including ratios are winsorized at the top and bottom 1% to deal with outliers in the sample. Additionally, the natural logarithm is taken for large continuous variables, being market value and firm size.

4.3 Economic model

The hypotheses are tested by using Ordinary Least Squares (OLS) models. The variable of CFP is regressed on CSR performance, the moderating variables and control variables. The following equations indicate the basic regression models used for testing both the first (1) and second (2) hypothesis:

$$CFP_{i,t} = \beta_0 + \beta_1 CSR + \beta_2 AUDIT + \beta_3 CSR * AUDIT + \beta_4 SIZE + \beta_5 LEV + \beta_6 GRTH + \beta_7 IND + \beta_8 YEAR + \varepsilon_{i,t} \tag{1}$$

$$CFP_{i,t} = \beta_0 + \beta_1 CSR + \beta_2 AUDIT + \beta_3 B4 + \beta_4 AUDIT * B4 + \beta_5 SIZE + \beta_6 LEV + \beta_7 GRTH + \beta_8 IND + \beta_9 YEAR + \varepsilon_{i,t} \tag{2}$$

The influence of CSR reporting is measured on two dimensions: accounting performance and firm evaluation. Accounting performance is proxied by ROA and ROE, while firm evaluation is proxied by the market value and Tobin's Q. CFP indicates the accounting performance and firm evaluation per firm (i) per year (t). The regression is performed four times, once with each of the financial performance measures, in order to compare results between various CFP measures. ROE measures the retorn on equity, ROA measures the return on assets, MV measures the market value and Q measures Tobin's Q. CSR represents the overall ESG score that was awarded during the firm year observation. AUDIT is a binary variable that takes the value of one if the CSR report is audited, and zero otherwise. The interaction term, CSR*AUDIT is an interaction term which is calculated as CSR multiplied by AUDIT. In the

second equation, B4 is introduced and indicates whether or not the external assurance was provided by the Big 4 accounting firms and AUDIT*B4 is the interaction term between assurance and Big 4.Furthermore, SIZE is the natural logarithm of total assets, LEV indicates the financial leverage, GRTH indicates firm growth, IND indicates the industry and YEAR provides the firm year. $\varepsilon_{i,t}$ represents the error term per firm year observation. With regards to the first equation, β_3 is the coefficient of interest as this captures the effect of assurance services on the relation between CSR and financial performance and firm evaluation. The expected outcome of this coefficient is a statistically significant positive effect. For the second equation, β_5 is the coefficient of interest, as this interaction effect captures whether or not the influence of CSR assurance is higher statistically different in the case of a Big 4 auditor as compared to a non-Big 4 auditor.

OLS regression is used based on the assumption of a linear relation between CSR and firm performance and firm evaluation. Using OLS regression allows for estimating unknown parameters in the linear regression model. For the variables of interest in the first and second equation, based on the hypotheses, a statistically significant positive relation is expected.

Table 4

Type	Variable name	Variable description	Variable formula or measurement
Dependent variables	ROA	Return on assets	$\dfrac{net\ income}{total\ assets}$
	ROE	Return on equity	$\dfrac{net\ income}{average\ shareholder's\ equity}$
	MV	Firm market value	$average\ share\ price \times average\ shares\ outstanding$
	Q	Tobin's Q	$\dfrac{market\ value\ of\ equity + preferred\ stock + short\ term\ liabilitites + book\ value\ of\ long\ term\ debt}{book\ value\ of\ total\ assets}$
Independent variables	CSR	Overall ESG score awarded based on CSR reporting	ESG score from 0-100 as measured by Refinitiv
Moderating variables	AUDIT	Dummy for having externally assured CSR reporting	Value 1 for auditing CSR reports and 0 otherwise.
	B4	Dummy for having CSR reporting externally assured by the Big 4 accounting firms	Value 1 for audited CSR reports by Big 4 and 0 otherwise
Interaction variables	CSR*AUDIT	Interaction variable for CSR performance and external assurance.	$CSR \times AUDIT$
	AUDIT*B4	interaction variable for external assurance and Big 4	$AUDIT \times B4$
Control variables	SIZE	Firm size	Natural logarithm of total firm assets
	LEV	Firm leverage	$\dfrac{total\ debt}{total\ assets}$
	Growth	Firm growth	$\dfrac{total\ assets_t - total\ assets_{t-1}}{total\ assets_{t-1}}$
	Industry	Categorical variable indicating the firm's industry classification	Firm industry as per Refinitiv database
	YEAR	Categorical variable indicating the observation year	Firm year observation

This table contains an overview of all variables used in model 1 and 2. The first column contains the type of the variables, the second column is the variable name. The third column shows the definition of the variable and the fourth column indicates the formula for calculating the variable or its measurement.

5. Results

In this chapter, the results of the statistical analysis will be presented. Firstly, descriptive statistics from the dataset will be covered including the means, standard deviations and correlations. Then the results from the linear regressions are presented and interpreted.

5.1 Summary statistics

From the sample drawn in the previous chapter the descriptive statistics are presented in this paragraph. As discussed in chapter 4.1, two distinct samples are used. However, the descriptive statistics are presented for the entire period, which is the sample of firm year observations between 2002 and 2020. Table 5 shows the mean and standard deviation for the variables in the sample. The average ROE is at around 13% and ROA of around 5% which is relatively in line with prior research on this topic. This also indicates that our firm sample consisted on average of profitable firms during the entire sample period. The mean of market value is 59.4 million with a standard deviation of 321 million. This high fluctuation can be explained by the fact that firm financial data is captured in local currencies and therefore the number can differ highly between firms. Tobin's Q has an average of 1.3 with a standard deviation of 0.9. The mean of CSR scores was around 61. This shows that the EU firms in the sample performed relatively higher on CSR performance when compared to the global benchmark of firms. During all firm year observations, 78% of all CSR reports were audited. Of these, 75% were audited by Big 4 accounting companies. This high number is likely the result of the firms in the sample being large and profitable firms and therefore capable of performing audits with Big 4 companies. The average of total firm assets is 103.4 million with a standard deviation of 804.5 million. Again, the high standard deviation can be explained by the firm financial data being captured in local currencies. It is also notable that firms on average had substantially higher total assets when compared to market value. This is caused by the fact that total assets have been measured, rather than net assets and therefore not taking into account accumulated depreciation and amortization resulting in larger firm size.

Table 5

Variable	Mean	Std. Deviation
ROE	.128	.191
ROA	0.050	0.062
MV	59,463,690	321,003,700
Q	1.352	.967
CSR	61.091	17.963
AUDIT	.780	.414
B4	.749	.433
CSR*AUDIT	51.361	30.339
AUDIT*B4	.592	.492
SIZE	103,446,035	804,542,240
LEV	.281	.151
GRTH	0.077	0.182
Valid N (listwise)	5,516	

This table presents descriptive statistics with the means and standard deviations for each variable in the data except for year and firm industry. variable, M and SD are used to represent the variable, mean and standard deviation respectively. N indicates the number of observations in computing the means and standard deviations.

Table 6 presents a Pearson correlation matrix of all variables for the entire sample period. All of the proxies for both firm performance and firm evaluation correlate positively, namely ROE with ROA, and MV with Q, which confirms the validity of being used as dependent variables in this study. CSR seems to be slightly negatively and somewhat significantly correlated to firm evaluation and firm performance proxies, however, this is in line with what has been reported in prior research and these preliminary statistics are not conclusive for addressing multicollinearity concerns. The moderating variable for the first model also seems to be correlated to the dependent variables but this correlation is lost on the moderating variable of the second model. Moreover, all control variables seem to be significantly correlated to the dependent variables with the exception of firm size on the return on equity. This also indicates that these variables are justifiably included in the model for controlling for the variance of the dependent variables.

Table 6

Variable	1	2	3	4	5	6	7	8	9	10	11
1. ROE											
2. ROA	.70**										
	[.69, .71]										
3. MV	.16**	.25**									
	[.14, .19]	[.22, .27]									
4. Q	.31**	.52**	.17**								
	[.28, .33]	[.50, .54]	[.14, .20]								
5. CSR	-.04**	-.08**	.31**	-.09**							
	[-.06, -.01]	[-.11, -.06]	[.29, .34]	[-.11, -.06]							
6. AUDIT	-.07**	-.10**	.09**	-.06**	.50**						
	[-.10, -.05]	[-.13, -.08]	[.06, .11]	[-.08, -.03]	[.48, .52]						
7. B4	-.03*	-.03*	.13**	-.01	.10**	.04**					
	[-.06, -.00]	[-.05, -.00]	[.10, .15]	[-.03, .02]	[.08, .13]	[.02, .07]					
8. CSR*AUDIT	-.06**	-.11**	.20**	-.08**	.77**	.90**	.08**				
	[-.09, -.04]	[-.13, -.08]	[.18, .23]	[-.11, -.05]	[.76, .78]	[.89, .90]	[.06, .11]				
9. AUDIT*B4	-.06**	-.08**	.13**	-.03*	.39**	.64**	.70**	.61**			
	[-.09, -.04]	[-.10, -.05]	[.10, .15]	[-.06, -.01]	[.36, .41]	[.62, .66]	[.68, .71]	[.60, .63]			
10. SIZE	-.01	-.04**	.86**	-.25**	.37**	.13**	.15**	.25**	.17**		
	[-.04, .01]	[-.07, -.02]	[.86, .87]	[-.27, -.22]	[.34, .39]	[.10, .16]	[.13, .18]	[.23, .28]	[.15, .20]		
11. LEV	-.10**	-.31**	-.13**	-.18**	.08**	.06**	.07**	.08**	.08**	.05**	
	[-.13, -.08]	[-.33, -.28]	[-.16, -.11]	[-.20, -.15]	[.06, .11]	[.04, .09]	[.04, .09]	[.05, .10]	[.05, .10]	[.02, .08]	
12. GRTH	.15**	.18**	.07**	.11**	-.12**	-.05**	-.02	-.09**	-.05**	-.00	.03*
	[.13, .18]	[.15, .20]	[.04, .09]	[.09, .14]	[-.15, -.10]	[-.08, -.03]	[-.05, .00]	[-.12, -.06]	[-.07, -.02]	[-.03, .03]	[.01, .06]

This table is used to present the correlations with confidence intervals. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates p <0.5., ** indicates p < 0.1

5.2 Regression results

Table 7 provides the output for the OLS regression of the first and second model for the entire sample of firm-year observations. Firstly, for model 1 corporate firm performance is proxied by ROE and ROA. From the output, no effect of CSR performance on firm performance is noted. However, this coefficient is not statistically significant and therefore lends no insights on the CFP-CSP relation. Secondly, CSR assurance seems to have a small negative effect but this coefficient is also insignificant. Furthermore, the interaction effect between CSR performance and assurance has no effect, but again with a negative coefficient. Size has a negligible negative effect and is only statistically significant for ROA but not for ROE, however, leverage shows a negative effect on firm performance and is highly significant for both proxies. Likewise, growth has a positive significant effect for both ROE and ROA. The adjusted R² of the models is .046 and .142 respectively indicating low explanatory power of the model.

For model 2, CSR performance shows a positive negligible effect on ROE which is highly significant, but no effect on ROA with an insignificant coefficient. Furthermore, again CSR assurance has a small negative effect which is insignificant. The same applies to the variable for Big 4. The interaction effect between CSR assurance and Big 4 has nearly no effect and is statistically insignificant. Again, we note a small and negligible negative effect of firm size which is only significant on ROA. Also, firm leverage has a negative and highly significant effect on both proxies. Growth has a highly significant positive effect on both performance proxies. The adjusted R² of these models is similar at .046 and .141 for ROE and ROA respectively, which indicates that the model examining the effects of CSR assurance by Big 4 companies also has low explanatory power.

With regards to firm evaluation, for model 1, the dependent variables are market value and Tobin's Q. CSR performance has a small positive effect which is significant for market value, but not for Tobin's Q. CSR assurance has a negative effect on both variables but is only statistically significant for market value. The interaction term between CSR performance and assurance again has no effect and is statistically insignificant. Firm size has a positive effect on market value, but a negative effect on Tobin's Q. Both effects are highly significant. Additionally, firm leverage has a highly significant negative effect in both cases and growth a highly significant positive effect. The adjusted R² for these models is .783 and .128 respectively. This indicates that the model is reliable for explaining market value but weak for explaining the value of Tobin's Q.

For model 2, CSR performance again has a positive but small effect on market value which is highly significant, but no significant effect on Tobin's Q. CSR assurance has a negative effect but is only significant for Tobin's Q. The variable Big 4 shows a positive and marginally significant effect on both market value and Tobin's Q. However, the variable of interest, which is the interaction effect between CSR assurance by Big 4 companies shows insignificant effects. The effects of the control variables on both market value and Tobin's Q are similar to model 1 and again highly significant. The adjusted R² for these models is .784 and .129.

<div align="center">Table 7</div>

Variable	ROE		ROA		MV		Q	
	Coef	p	Coef	p	Coef	p	Coef	p
Model 1:								
Intercept	8.945	<.001***	1.966	<.001***	-18.588	<.001***	-26.217	<.001***
CSR	.000	.178	.000	.174	.003	.024*	.003	.099
AUDIT	-.013	.515	-.001	.826	-.184	.035*	-.104	.291
CSR*AUDIT	.000	.618	.000	.489	.000	.895	-.001	.467
SIZE	-.003	.061	-.001	.016*	.866	<.001***	-.135	<.001***
LEV	-.128	<.001***	-.125	<.001***	-2.047	<.001***	-1.108	<.001***
Growth	.165	<.001***	.062	<.001***	.682	<.001***	.589	<.001***
IND	Yes		Yes		Yes		Yes	
YEAR	Yes		Yes		Yes		Yes	
Adj. R^2	.046		.142		.783		.128	
N	5,516		5,516		5,516		5,516	
Model 2:								
Intercept	9.018	<.001***	1.945	<.001***	-18.700	<.001***	-26.879	<.001***
CSR	.001	.001**	.000	.168	.003	<.001***	.002	.079
AUDIT	-.002	.859	-.007	.093	-.094	.085	-.150	.014*
B4	-.006	.607	-.001	.736	.101	.050*	.113	.050*
AUDIT*B4	-.002	.865	.002	.689	-.112	.058	-.027	.684
SIZE	-.003	.091	-.001	.017*	.865	<.001***	-.139	<.001***
LEV	-.127	<.001***	-.125	<.001***	-2.053	<.001***	-.1124	<.001***
Growth	.165	<.001***	.062	<.001***	.684	<.001 ***	.595	<.001***
IND	Yes		Yes		Yes		Yes	
YEAR	Yes		Yes		Yes		Yes	
Adj. R^2	.046		.141		.784		.129	
N	5,516		5,516		5,516		5,516	

*This table shows the output for the regression analysis of models 1 and 2 for the entire sample period 2002-2020. The first column shows the variable. Then, the subsequent columns provide the coefficient and p values for firm performance (ROE and ROA) and firm evaluation (MV and Q). The error term, adjusted R2 and number of observations are presented in the rows alongside the variables. For all regressions, industry and year fixed effects have been accounted for. * indicates p <0.05., ** indicates p < 0.01, *** indicates p < 0.001.*

Table 8 provides the same output of the OLS regressions for the first and second model but for the subsample of firm-year observations between 2014 and 2020. The number of observations, N, is lower for these regressions at 2,391 compared to 5,516 in the full sample. All other variables remain unchanged. In this regression, for model 1, CSR performance has a very small and negative significant effect on the ROE but insignificant on ROA. CSR assurance has a negative effect on both proxies and this effect is stronger and more significant for ROE than for ROA. The interaction effect and firm size both show negligible and insignificant effects. Firm leverage has a negative and highly significant effect whilst growth has a positive and highly significant effect. The adjusted R² for these models is .035 and .133 respectively.

In model 2, CSR performance shows no effect and the coefficients are insignificant. CSR assurance does have a small negative effect which is insignificant for ROE but highly significant for ROA. Similarly to model 1, the interaction effect and firm size are not statistically significant, but firm leverage has a negative coefficient and firm growth a positive coefficient, both highly significant. The adjusted R² for these models are .033 and .133.

Firm evaluation in model 1 presents no significant effects on market value and Tobin's Q except for the control variables which are all highly significant. The adjusted R^2 is .779 and .132 respectively. Model 2 presents a small positive and highly significant effect for CSR performance on market value but insignificant for Tobin's Q. CSR assurance has a negative effect which is marginally significant for market value but highly significant for Tobin's Q. Big 4 is also only significant for Tobin's Q and has a strong negative effect. Most notably, the variable of interest, which is the interaction effect between CSR assurance and Big 4 has a strong positive effect for Tobin's Q which is highly significant. The control variables are similar to model 1 and highly significant. The adjusted R^2 is .779 and .135 respectively. Each regression controls for industry and year fixed effects.

Table 8

Variable	ROE		ROA		MV		Q	
	Coef	p	Coef	p	Coef	p	Coef	p
Model 1								
Intercept	13.562	<.001	4.754	<.001***	-29.416	.074	-45.256	.016*
CSR	-.003	.032*	-.001	.143	.003	.597	.006	.342
Audit	-.206	.008**	-.052	.027*	-.229	.505	.087	.824
CSR*Audit	.003	.014	.001	.134	.001	.845	-.005	.484
Size	.001	.565	-.001	.301	.867	<.001***	-.136	<.001***
Leverage	-.127	<.001***	-.120	<.001***	-2.054	<.001***	-1.157	<.001***
Growth	.164	<.001***	.069	<.001***	1.029	<.001***	.974	<.001***
Industry	Yes		Yes		Yes		Yes	
Year	Yes		Yes		Yes		Yes	
Adj. R^2	.035		.133		.779		.132	
N	2,931		2,931		2,931		2,931	
Model 2								
Intercept	13.108	<.001***	4.726	<.001***	-29.021	.078	-42.969	.022*
CSR	.000	.148	.000	.971	.004	<.001***	.001	.297
Audit	-.015	.665	-.032	.002**	-.297	.046*	-.591	.001**
B4	-.002	.951	-.020	.096	-.170	.330	-.499	.013**
Audit*B4	-.009	.819	.020	.098	.193	.279	.595	.004**
Size	.002	.441	-.001	.361	.867	<.001***	-.137	<.001***
Lev	-.126	<.001***	-.119	<.001***	-2.052	<.001***	-1.153	<.001***
Growth	.161	<.001***	.068	<.001***	1.025	<.001***	.969	<.001***
Industry	Yes		Yes		Yes		Yes	
Year	Yes		Yes		Yes		Yes	
Adj. R^2	.033		.133		.779		.135	
N	2,931		2,931		2,931		2,931	

*This table shows the output for the regression analysis of models 1 and 2 for the entire sample period 2002-2020. The first column shows the variable. Then, the subsequent columns provide the coefficient and p values for firm performance (ROE and ROA) and firm evaluation (MV and Q). The error term, adjusted R2 and number of observations are presented in the rows alongside the variables. For all regressions, industry and year fixed effects have been accounted for. * indicates p <0.05., ** indicates p < 0.01, *** indicates p < 0.001.*

The results found in the statistical analysis are in line with what can be expected based on the correlation matrix in table 6. The correlation matrix indicated a significant but low correlation between the dependent, independent and moderating variables. Nevertheless, a correlation was found between firm size and ROA, market value and Tobin's Q, but not for ROE. This is in line with the estimated coefficients in the OLS regressions. This also goes for firm leverage which was negatively correlated to all dependent variables and significant negative effects were found. Lastly, firm growth gives a high correlation to the dependent variables which is in line with the coefficients from the regression analysis. This strengthens the results found in the analysis because larger firm size and growth suggest stronger firm performance and evaluation according to Baumol's proposition (Hall & Weiss, 1967; Geroski et al., 1997) but poor leverage impedes firm profitability (Ibhagui & Olokoyo, 2018). This decreases the likelihood that the inconsistent findings with regards to CSR performance and CSR assurance are due to irregular firm-year observations in the sample.

Overall, the results for the full and sub sample of firm-year observations were relatively similar, but more significant coefficients were found in the variable for CSR assurance in the sub sample. However, nearly all observations in the period 2014-2020 had audited CSR reports which is why the period 2002-2020 was tested additionally to check for biased results.

The coefficients for CSR performance fluctuated between significant and insignificant, however, the significant coefficients were of such a low value that as a whole, the results signify that CSR performance has no positive or negative effect on firm profitability and firm evaluation for the sample of firm-year observations utilized in this research. The results for CSR assurance were also indecisive. When examining the period 2002-2020, only small and mildly significant negative effects were found. For the period 2014-2020, the results indicate that auditing has a significant negative effect of CSR assurance on firm performance and evaluation. One possible explanation could be that auditing CSR reports leads to costs for the company which in turn leads to lower returns. However, a more likely explanation is that these results are biased, as less than 4% of CSR reports in the sample from 2014-2020 were unaudited and therefore this period offers a poor comparison. The interaction term CSR*AUDIT suggests that CSR assurance has no incremental benefits or costs for ESG activity. Big 4 is insignificant in all cases for returns, but has a mixed effect depending on the sample period for firm evaluation. As with CSR assurance, the full sized sample offers a better distribution of non-Big 4 to Big 4 assurance providers, making the results more reliable. The positive effect found is in line with expectations as more prestigious auditors should strengthen stakeholder perception of firm disclosures. This effect is marginally significant however for both Tobin's Q and market value so no conclusions are drawn from this observation. Finally the interaction term for CSR assurance by Big 4 accountants was only significant for Tobin's Q in the subsample and had a strong negative effect. Due to similar reasons as for the Big 4 coefficients, we draw no conclusions from this. The significant effects found for market value and Tobin's Q are not economically meaningful.

6. Conclusion & discussion

This study investigates the effects of assurance services for CSR reporting on the relation between CSR performance and financial performance on two dimensions: firm profitability and firm evaluation. Additionally, whether this effect differs for assurance provided by Big 4 accounting firms is explored. Building on prior literature and theory, the hypotheses state that CSR assurance will increase benefits of ESG activities based on stakeholder theory and legitimacy. Using a sample of 5,516 firm-year observations from 2002-2020 for listed EU entities, financial performance is regressed on CSR performance and other variables of interest. Furthermore, a subsample is taken from the entire sample for the period of 2014-2020 containing 2,931 firm-year observations to focus on the most accurate ESG data and the same regression is applied to the subsample.

On average, this study finds that CSR performance has no effects on firm profitability and firm evaluation after controlling for firm size, leverage, growth and industry and year fixed effects. It also finds no interaction between CSR assurance and performance on the dependent variables, indicating that potential benefits or costs of CSR performance do not change as a result of auditing CSR reports. Second, the study finds that these results do not differ in the case of Big 4 assurance providers as opposed to non-Big 4 assurance providers. These results imply that there is no monetary incentive for firms to have their CSR reports audited. Additionally, firms are equally well of acquiring an auditor's opinion on CSR reports from non-Big 4 accountants which might perform the same service at a lower fee.

Finally, a suggestion for future research is to investigate CSR reporting assurance in a broader setting, considering most listed firms in the sample had audited CSR reports. Smaller, non-listed firms could be included in future studies. Also, CSR assurance could be dissected into more categories, such as assurance provided by consulting parties as opposed to accountants, and audits with limited levels of assurance compared to reasonable levels assurance.

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Appendix

Figures
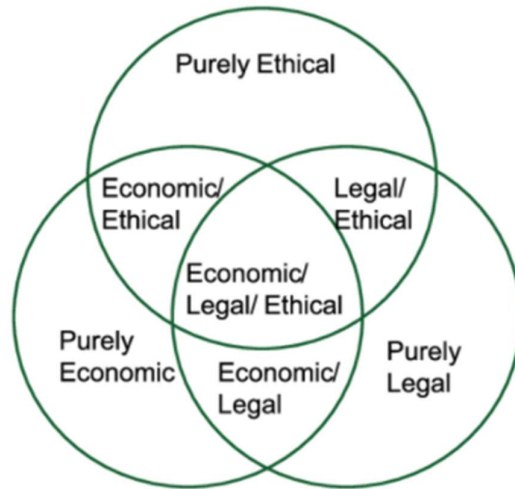
Figure I – The Three-Domain Model of CSR (Meynhardt & Gomez, 2019).
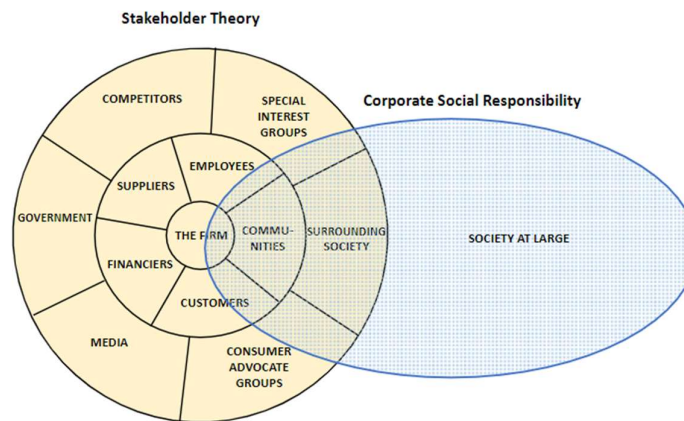
Figure II – The overlapping elements of CSR and stakeholder theory (Freeman & Dmytriyev, 2017).
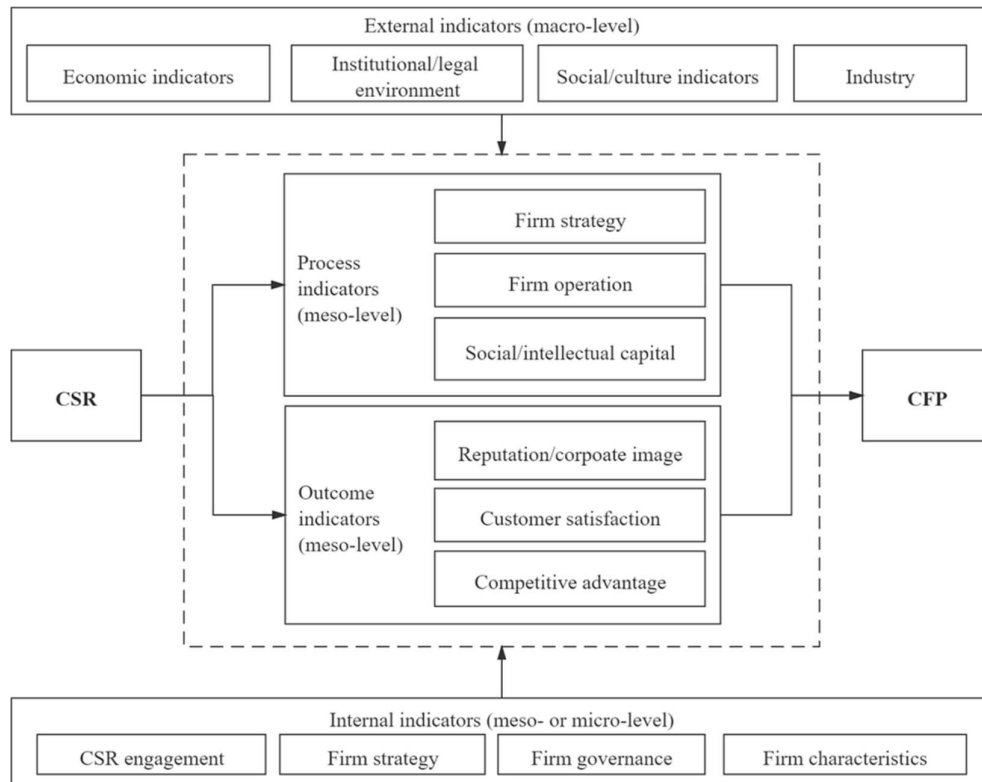
Figure III – Framework for identifying moderating and mediating effects on the CSR-CFP relation (Ye et al., 2021).

Statistical output

The following tables contain the raw output from the statistical analysis in SPSS. Firstly for the full sample and secondly for the subsample. For each dependent variable, the model summary is presented first and the coefficients second.

Full sample

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.219[a]	.048	.046	.186962	.048	34.527	8	5507	.000

a. Predictors: (Constant), year, size, industry, growth, lev, csr, audit, csraudit

b. Dependent Variable: roe

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	8.945	1.223		7.311	.000
	csr	.000	.000	.040	1.347	.178
	audit	−.013	.020	−.029	−.651	.515
	csraudit	.000	.000	.029	.498	.618
	size	−.003	.002	−.027	−1.872	.061
	lev	−.128	.017	−.101	−7.653	.000
	growth	.165	.014	.157	11.774	.000
	industry	−.002	.001	−.022	−1.647	.100
	year	−.004	.001	−.120	−7.153	.000

a. Dependent Variable: roe

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.378[a]	.143	.142	5.72442E−2	.143	114.782	8	5507	.000

a. Predictors: (Constant), year, size, industry, growth, lev, csr, audit, csraudit

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.966	.375		5.249	.000
	csr	.000	.000	.038	1.358	.174
	audit	−.001	.006	−.009	−.219	.826
	csraudit	.000	.000	−.038	−.692	.489
	size	−.001	.000	−.033	−2.409	.016
	lev	−.125	.005	−.306	−24.399	.000
	growth	.062	.004	.182	14.383	.000
	industry	.001	.000	.052	4.141	.000
	year	−.001	.000	−.080	−4.994	.000

a. Dependent Variable: roa

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.885[a]	.784	.783	.805854	.784	2495.656	8	5507	.000

a. Predictors: (Constant), year, size, industry, growth, lev, csr, audit, csraudit

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	−18.588	5.274		−3.525	.000
	csr	.003	.001	.032	2.255	.024
	audit	−.184	.088	−.044	−2.105	.035
	csraudit	.000	.002	.004	.132	.895
	size	.866	.007	.864	126.077	.000
	lev	−2.047	.072	−.178	−28.305	.000
	growth	.682	.061	.071	11.259	.000
	industry	.032	.004	.051	8.077	.000
	year	.007	.003	.021	2.628	.009

a. Dependent Variable: mv

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.359[a]	.129	.128	.902959	.129	101.862	8	5507	.000

a. Predictors: (Constant), year, size, industry, growth, lev, csr, audit, csraudit

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	−26.217	5.909		−4.437	.000
	csr	.003	.002	.047	1.652	.099
	audit	−.104	.098	−.044	−1.057	.291
	csraudit	−.001	.002	−.040	−.728	.467
	size	−.135	.008	−.242	−17.604	.000
	lev	−1.108	.081	−.173	−13.673	.000
	growth	.589	.068	.111	8.686	.000
	industry	.051	.004	.147	11.641	.000
	year	.015	.003	.081	5.044	.000

a. Dependent Variable: q

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
					Change Statistics				
1	.219[a]	.048	.046	.186952	.048	30.870	9	5506	.000

a. Predictors: (Constant), b4, year, industry, growth, lev, size, csr, audit, auditb4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.018	1.219		7.400	.000
	csr	.001	.000	.053	3.203	.001
	audit	−.002	.013	−.005	−.178	.859
	size	−.003	.002	−.025	−1.693	.091
	lev	−.127	.017	−.100	−7.565	.000
	growth	.165	.014	.156	11.743	.000
	industry	−.001	.001	−.021	−1.589	.112
	year	−.004	.001	−.121	−7.254	.000
	auditb4	−.002	.014	−.006	−.170	.865
	b4	−.006	.012	−.014	−.514	.607

a. Dependent Variable: roe

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
					Change Statistics				
1	.378[a]	.143	.141	5.72511E−2	.143	101.969	9	5506	.000

a. Predictors: (Constant), b4, year, industry, growth, lev, size, csr, audit, auditb4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.945	.373		5.211	.000
	csr	.000	.000	.022	1.379	.168
	audit	−.007	.004	−.044	−1.679	.093
	size	−.001	.000	−.033	−2.391	.017
	lev	−.125	.005	−.306	−24.340	.000
	growth	.062	.004	.182	14.372	.000
	industry	.001	.000	.051	4.108	.000
	year	−.001	.000	−.078	−4.951	.000
	auditb4	.002	.004	.013	.400	.689
	b4	−.001	.004	−.009	−.338	.736

a. Dependent Variable: roa

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
					Change Statistics				
1	.885[a]	.784	.784	.805636	.784	2220.005	9	5506	.000

a. Predictors: (Constant), b4, year, industry, growth, lev, size, csr, audit, auditb4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	−18.700	5.251		−3.561	.000
	csr	.003	.001	.034	4.289	.000
	audit	−.094	.055	−.022	−1.725	.085
	size	.865	.007	.863	124.962	.000
	lev	−2.053	.072	−.179	−28.336	.000
	growth	.684	.061	.072	11.301	.000
	industry	.032	.004	.051	8.096	.000
	year	.007	.003	.021	2.651	.008
	auditb4	−.112	.059	−.032	−1.898	.058
	b4	.101	.052	.025	1.962	.050

a. Dependent Variable: mv

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
					Change Statistics				
1	.361[a]	.131	.129	.902204	.131	91.831	9	5506	.000

a. Predictors: (Constant), b4, year, industry, growth, lev, size, csr, audit, auditb4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	−26.879	5.881		−4.571	.000
	csr	.002	.001	.028	1.759	.079
	audit	−.150	.061	−.064	−2.463	.014
	size	−.139	.008	−.248	−17.904	.000
	lev	−1.124	.081	−.175	−13.855	.000
	growth	.595	.068	.112	8.769	.000
	industry	.051	.004	.146	11.542	.000
	year	.015	.003	.083	5.189	.000
	auditb4	−.027	.066	−.014	−.408	.684
	b4	.113	.058	.051	1.958	.050

a. Dependent Variable: q

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.194[a]	.037	.035	.190502

a. Predictors: (Constant), year, industry, csraudit, lev, growth, size, audit, csr

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.562	3.710		3.655	.000
	csr	−.003	.001	−.218	−2.146	.032
	audit	−.206	.078	−.201	−2.655	.008
	csraudit	.003	.001	.324	2.454	.014
	size	.001	.002	.011	.576	.565
	lev	−.127	.023	−.101	−5.516	.000
	growth	.164	.021	.146	7.931	.000
	industry	−.003	.001	−.043	−2.335	.020
	year	−.007	.002	−.066	−3.577	.000

a. Dependent Variable: roe

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.368[a]	.136	.133	5.75291E−2

a. Predictors: (Constant), year, industry, csraudit, lev, growth, size, audit, csr

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.754	1.120		4.243	.000
	csr	−.001	.000	−.141	−1.465	.143
	audit	−.052	.023	−.158	−2.211	.027
	csraudit	.001	.000	.187	1.500	.134
	size	−.001	.001	−.019	−1.034	.301
	lev	−.120	.007	−.298	−17.153	.000
	growth	.069	.006	.193	11.076	.000
	industry	.001	.000	.027	1.573	.116
	year	−.002	.001	−.073	−4.128	.000

a. Dependent Variable: roa

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.883^a	.780	.779	.844306

a. Predictors: (Constant), year, industry, csraudit, lev, growth, size, audit, csr

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	−29.416	16.444		−1.789	.074
	csr	.003	.006	.026	.529	.597
	audit	−.229	.344	−.024	−.666	.505
	csraudit	.001	.006	.012	.196	.845
	size	.867	.010	.858	90.296	.000
	lev	−2.054	.102	−.176	−20.074	.000
	growth	1.029	.092	.099	11.224	.000
	industry	.023	.006	.035	3.995	.000
	year	.012	.008	.013	1.505	.132

a. Dependent Variable: mv

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.366[a]	.134	.132	.965957

a. Predictors: (Constant), year, industry, csraudit, lev, growth, size, audit, csr

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	−45.256	18.813		−2.406	.016
	csr	.006	.007	.091	.949	.342
	audit	.087	.393	.016	.222	.824
	csraudit	−.005	.007	−.088	−.700	.484
	size	−.136	.011	−.233	−12.395	.000
	lev	−1.157	.117	−.172	−9.878	.000
	growth	.974	.105	.162	9.280	.000
	industry	.054	.006	.144	8.283	.000
	year	.024	.009	.046	2.594	.010

a. Dependent Variable: q

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.190[a]	.036	.033	.190669

a. Predictors: (Constant), auditb4, industry, lev, growth, year, size, audit, csr, b4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.108	3.713		3.531	.000
	csr	.000	.000	.029	1.448	.148
	audit	−.015	.034	−.014	−.432	.665
	size	.002	.002	.015	.771	.441
	lev	−.126	.023	−.100	−5.467	.000
	growth	.161	.021	.144	7.796	.000
	industry	−.003	.001	−.039	−2.136	.033
	year	−.006	.002	−.065	−3.501	.000
	b4	−.002	.040	−.005	−.061	.951
	auditb4	−.009	.040	−.021	−.228	.819

a. Dependent Variable: roe

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.368[a]	.136	.133	5.75337E−2

a. Predictors: (Constant), auditb4, industry, lev, growth, year, size, audit, csr, b4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.726	1.120		4.219	.000
	csr	.000	.000	−.001	−.037	.971
	audit	−.032	.010	−.097	−3.110	.002
	size	−.001	.001	−.017	−.914	.361
	lev	−.119	.007	−.297	−17.081	.000
	growth	.068	.006	.191	10.939	.000
	industry	.001	.000	.029	1.688	.092
	year	−.002	.001	−.072	−4.121	.000
	b4	−.020	.012	−.139	−1.666	.096
	auditb4	.020	.012	.145	1.654	.098

a. Dependent Variable: roa

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.883[a]	.780	.779	.844264

a. Predictors: (Constant), auditb4, industry, lev, growth, year, size, audit, csr, b4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	−29.021	16.439		−1.765	.078
	csr	.004	.001	.034	3.569	.000
	audit	−.297	.149	−.031	−1.998	.046
	size	.867	.010	.858	90.163	.000
	lev	−2.052	.102	−.176	−20.041	.000
	growth	1.025	.092	.098	11.183	.000
	industry	.023	.006	.035	4.009	.000
	year	.012	.008	.013	1.485	.138
	b4	−.170	.175	−.041	−.975	.330
	auditb4	.193	.179	.048	1.082	.279

a. Dependent Variable: mv

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.371^a	.137	.135	.964346

a. Predictors: (Constant), auditb4, industry, lev, growth, year, size, audit, csr, b4

Coefficients^a

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	−42.969	18.778		−2.288	.022
	csr	.001	.001	.020	1.044	.297
	audit	−.591	.170	−.108	−3.480	.001
	size	−.137	.011	−.235	−12.476	.000
	lev	−1.153	.117	−.171	−9.854	.000
	growth	.969	.105	.161	9.248	.000
	industry	.053	.006	.142	8.231	.000
	year	.023	.009	.044	2.510	.012
	b4	−.499	.200	−.208	−2.498	.013
	auditb4	.595	.204	.255	2.911	.004

a. Dependent Variable: q