

Corporate Social Performance, Corporate Financial
Performance and CSR assurance – an international
examination



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Abstract

This study aims to give an understanding of the moderating role of CSR assurance (CSRA) on the relationship between Corporate Social Performance (CSP) and Corporate Financial Performance (CFP). Since prior research mainly focused on US samples and market-based measures for CFP, this study investigates an international sample of firms and uses two accounting-based measures of CFP, namely ROA and ROE. By using a sample of 8760 firm-year observations of 56 countries between 2015 and 2019, several statistical analyses are performed. The results indicate that there is a positive relationship between CSP and CFP, but that CSRA does not influence this relationship. Moreover, it does not matter whether this assurance is coming from a non-Big 4 firm or a Big 4 firm. A robustness check with a market-based measure indicates that assurance from a Big 4 firm would harm the relationship. Moreover, when the sample is divided in stakeholder- and shareholder-oriented countries, there is a small positive effect found of non-Big 4 assurance on the CSP – CFP relationship. This study gives an inside to managers who want to obtain CSR assurance and to researchers who want to gain deeper insights in the CSP – CFP relationship and the effect of CSR assurance.

Keywords: CSR, CSR assurance, CSP, financial performance, assurance provider

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1. Introduction

This study investigates the relation between the assurance of Corporate Social Responsibility (CSR) reports (hereafter called CSRA), and the corporate financial performance (hereafter called CFP) of a firm, since CSRA becomes more and more important. In the past years more companies decided to report on their sustainability performance. According to the KPMG survey of sustainability reporting, 80% of the companies in their N100¹ sample reported on sustainability for the year 2020. Moreover, this same study showed that half of the companies decided to assure these sustainability reports (KPMG, 2020). This shows that CSRA becomes more important as well. There are different reasons for companies to obtain CSRA. If firms disclose CSR information, they may have the incentive to not report truthfully. This leads to information asymmetry between the firm and users of the report. However, the disclosure only has value if at least some of the users can use the report, which means that the information asymmetry needs to be removed. To remove this information asymmetry, CSRA can be obtained (Bagnoli & Watts, 2016). In line with this, Simnett et al. (2009) found that companies buy CSRA to enhance the credibility of the firm. And indeed, a CSR report that is assured is perceived more credible (Du & Wu, 2019; Hodge et al., 2009). Firms are also more likely to buy CSRA if other firms in the same industry buy this as well (Bagnoli & Watts, 2016).

This study will focus on the effect of CSRA on the relationship between CSR performance (hereafter called CSP) and CFP. Prior research already stated that there is a relationship between CSP and CFP (Clarkson et al., 2011; Orlitzky et al., 2003; Waddock & Graves, 1997). Moreover, studies showed that there are mixed results about this relationship and that there is need for a moderator (Javed et al., 2016; Wagner 2010). It is interesting to investigate CSRA as a moderator because prior literature already showed relationships between CSRA and CFP. Casey & Grenier (2015) showed that CSRA can lead to a reduction in the cost of capital for a sample of US firms, and they showed that the reduction becomes stronger when the assurance comes from an accounting firm. If CSRA leads to a reduction in the cost of capital, it is also likely that CSRA will lead to changes in the financial performance of a firm. Other studies already investigated the direct relationship between CSRA and the firm or market value for a sample of South-African firms (Horn et al., 2018) and a sample of French firms (Lajmi & Paché, 2020). These studies found a negative relationship between CSRA and Tobin's Q and market value. Contrary to this, Cho et al. (2014) were not able to find a relationship between CSRA and the market value of a firm for a sample of US firms. Moreover, Kim et al. (2019) already showed that CSRA positively influences the CSP – CFP relationship. However, they only investigated this for a US sample, and they investigated CFP with a measure of the market value of the firm and with Tobin's Q. Since prior literature mainly focused on specific countries it is interesting to look at an international sample of firms. Clarkson et al. (2019) took this international

¹ This N100 sample is a representative sample of the large and mid-cap firms worldwide, since it contains the top 100 firms in revenue from each of the 52 countries used in the study.

view and looked at the direct effect of CSRA on CFP. Their study showed that there is a positive relationship between CSRA and the market value of the firm. Therefore, this study will extend prior literature by looking at the moderating effect of CSRA in an international setting. Moreover, since these studies used market-based measures for CFP, this study will extend this by looking at accounting-based measures for CFP.

In the light of this relationship, it is moreover interesting to look at the moderating effect of the assurance provider. Clarkson et al. (2019) showed that capital markets value assurance reports from Big 4 accountants more than other assurance reports. However, Kuo et al. (2021) showed that the choice of a Big 4 accountant as assurance provider does not influence the relationship between CSRA and the cost of debt capital. In line with this, Moroney et al. (2012) showed that the relationship between CSRA and the quality of environmental reporting is not influenced by the type of assurer. The effect of assurance provider on the valuation of CSR reports is therefore not clear from prior literature and it is considered as well.

The aim of this research is to deepen the understanding of the relationship between CSRA and CFP. This is done by looking at the moderating effect of CSRA on the relationship between CSP and CFP. Therefore, this research aims to give an understanding of the CSP – CFP relationship as well. Furthermore, this research aims to expand the understanding of the possible effect of assurance provider, by looking at the moderating effect of Big 4 and non-Big 4 companies on the CSP – CFP relationship. This all leads to the following research question *“What is the effect of CSRA and the choice of assurance provider on the relationship between CSP and CFP in an international setting?”*

To investigate these effects, the ESG dataset and financials from Refinitiv Eikon Datastream are used. An international sample of 8760 firm-year observations from 56 countries is taken for the years 2015 until 2019. An OLS regression is performed with industry and year dummies included. Several robustness checks are performed to check if the results hold in different circumstances.

This study contributes to the existing literature in several ways. First, it will extend the study of Kim et al. (2019) in two ways. There is taken an international sample instead of a US sample. This will increase the generalizability of the findings. Moreover, this study will look at accounting-based measures as a proxy for CFP, instead of market-based measures. Second, it extends other prior research which investigated the direct effect of CSRA on market- or accounting based measures in specific countries (Casey & Grenier, 2015; Cho et al., 2014; Horn et al., 2018; Lajmi & Paché, 2020). Third, it will contribute to the existing literature by investigating the moderating effect of the choice of assurance provider. Since prior literature is mixed about the effect (Clarkson et al., 2019; Kuo et al., 2021; Moroney et al., 2012), this study will contribute by giving another insight in the effect of assurance provider on the valuation of CSR reports. Fourth, this study will be relevant for firms who

consider obtaining CSRA. They can learn from this study what the value is of obtaining CSRA and if they should obtain it from a Big 4 accounting firm or not.

This study is structured in the following way. In the next chapter prior literature is reviewed and hypotheses are presented based on this literature. Chapter three gives an overview of the methodology. This chapter elaborates on the sample, variables, and econometric models. Chapter four presents the descriptive statistics, results, and robustness checks. The conclusion and discussion are presented in chapter five, as well as limitations and suggestions for further research.

2. Literature review and hypotheses development

2.1 Aim of this chapter

This chapter gives an overview of the existing literature about CSP, CSRA, assurance provider and CFP. CSP includes the social and environmental performance of a firm. CSRA refers to the external assurance provided by a third party on CSR disclosure. CSR disclosure is the disclosure of a separate CSR report or a CSR section in the annual report containing information about the environmental and social activities of a firm. CFP is measured in this study with the accounting value of the firm, by return on assets (ROA) and return on equity (ROE). All variables will be explained more in depth in the third chapter. To better understand the relationship with financial performance, also literature about market-based measures is investigated, since existing literature focuses on these measures as well. As a starting point, journals are selected from the list presented by Lowe & Locke (2006) to ensure that high quality journals are used. Moreover, studies from the Financial Times research rank are used (Ormans, 2016). However, since information about sustainability and CSR is not always present in these accounting journals, there is also made use of several other journals focused on the environment like: Ecological Economics; Journal of Cleaner Production; Sustainability; and Sustainability, and Accounting, Management and Policy Journal.

2.2 Relationship between CSP and CFP

To investigate the effect of CSRA on the relationship between CSP and CFP, it is important to understand the relationship between CSP and CFP. Stakeholder theory helps to understand this relationship. The basic idea of this theory is that value should be created for stakeholders (Freeman et al., 2010). Stakeholders can be described as a group that can affect or is affected by the objective of the organization (Marom, 2006). Stakeholder theory is about ethics and organizational management, and it addresses morals and values as explicit central features in the management of an organization (Phillips et al., 2003). Economic value is created when people voluntarily work together to improve stakeholder's circumstances. Managers need to maintain relationships and they need to make sure that a community is created where everybody strives for an increase of the value of the firm (Freeman et al., 2004). Following the idea that economic value is generated by improving stakeholder's circumstances, CFP will also be increased when stakeholder's interests are improved. This leads to the question whether CSP is an improvement of the interests of stakeholders, and thus whether a positive relationship between CSP and CFP will occur. According to Artiach et al. (2010), stakeholder theory states that an investment in CSP will lead to a positive financial outcome by managing stakeholders. Moreover, Orlitzky et al. (2013) stated that the instrumental stakeholder theory also predicts a positive relationship between CSP and CFP. This instrumental stakeholder theory is part of stakeholder theory, as explained by Donaldson & Preston (1997). They state that one aspect of stakeholder theory is that it is instrumental. This means that there is a connection between stakeholder

management and the success of the corporate performance goals. Thus, if a firm performs well on their stakeholder management, it is more likely to achieve its desired corporate governance goals. According to Orlitzky et al. (2003) this theory predicts a positive relationship between CSP and CFP, because the satisfaction of the stakeholders is necessary for a good financial performance, and a higher CSP is likely to lead to more satisfaction among stakeholders. This same study argued that stakeholder-agency theory explains that contracts entailed by stakeholder relationships help in monitoring and enforcing mechanisms that help managers in achieving their financial goals. Overall, the stakeholder theory argues for a positive relationship between CSP and CFP.

Other studies also found this relationship. According to Waddock & Graves (1997) there is a tension between the explicit and the implicit costs of a firm. With explicit costs they mean for example the costs to bondholders, and with implicit costs they mean other costs to stakeholders like the quality costs of the products and environmental costs. When a firm wants to lower its implicit costs there will be more irresponsible behavior and thus a lower CSP. This in turn will lead to higher explicit costs, leading to a competitive disadvantage. This will lead to a lower CFP. Therefore, there is a positive relationship between CSP and CFP. In this study, CSP was measured as an index of eight social performance indicators². CFP was measured as ROA, ROE and ROS (return on sales). Moreover, Waddock & Graves (1997) incorporated good management theory to state that a good CSP will lead to good CFP. This theory states that more attention to CSP will lead to a better relationship with the stakeholders. This in turn will lead to a better overall performance, and thus a better CFP. The study of Clarkson et al. (2011) specifically looked at environmental performance³. They found that firms who improve their environmental performance also experience an improvement in their financial performance. They measured financial performance with ROA_{t+1} and ROA_{t+2} . In this way, ROA was measured one and two years after environmental performance was measured. They stated that this finding is in line with the resource-based view of the firm. This theory states that valuable and costly to copy resources or capabilities are the most important factors to gain competitive advantage. Therefore, it is valuable if a firm does have resources which are difficult to transfer or trade. Hence, better environmental performance will only lead to better financial performance if these firms have sufficient financial resources and distinct resources and capabilities. In line with the stakeholder theory, good management theory, and the resource-based view of the firm, this study proposes a positive relationship between CSP and CFP which leads to the following hypothesis:

H1: CSP has a positive effect on CFP.

² These indicators were: community relations, employee relations, product characteristics, environmental performance, treatment of women and minorities, military contracts, involvement in South Africa (relevant during the study period) and participation in nuclear power.

³ Measured as the inverse of the pollution propensity.

2.3 Moderating effects on relationship between CSP and CFP

Before turning to the effect of CSRA, it is interesting to see whether there are other moderating factors on the relationship between CSP and CFP. Javed et al. (2016) did a systematic review about the relationship between CSP and CFP. They concluded that there are several contingencies researched in the relationship between CSP and CFP, but that the results are quite contradicting. They found a positive and a negative moderating effect of R&D. The same holds for advertising intensity, although the negative effect was found for CFP measured with an accounting-based measure and the positive effect was found for CFP measured with a market-based measure. The differences in effect can also be explained by the fact that when advertising is used as an industry-specific factor, it will have a negative effect on the relationship between CSP and CFP, but if it is used as a firm-specific factor, it will have a positive effect. The reason for this is that advertising at firm-level lowers the gap in information by showing the customers the involvement of the firm in socially responsible behavior. Peng & Yang (2014) investigated the moderating effects of the control-cash flow divergence and ownership by controlling shareholders. If there is more divergence between controlling shareholders and other shareholders, there is more information asymmetry, and the relationship between CSP and CFP becomes weaker. Furthermore, Wagner (2010) showed that there is need for a moderator, when they also investigated the moderating effect of R&D and advertising expenditures. Thus, these studies and examples show that different moderators have different effects on the relationship between CSP and CFP, and that there is a need for moderators in the relationship between CSP and CFP.

2.4 Why and when do companies obtain CSRA?

To understand whether CSRA does influence financial performance it is important to consider why companies choose to assure their CSR reports. An important reason to obtain assurance is to enhance credibility of CSR disclosure. Clarkson et al. (2019) found for an international sample of firms that the act of disclosing CSR information by itself does not have an influence on the market value of the firm. They noted that there is skepticism about the credibility of CSR disclosure because managers do have incentives to disclose in their self-interest. This can explain why the act of disclosing itself is not enhancing market value. This idea is supported by Simnett et al. (2009) who stated that CSR disclosure has a lack of credibility. Furthermore, Hodge et al. (2009) stated that this lack of credibility is also due to limited reporting guidelines, which lead to different natures and content of the reports. Therefore, users of sustainability reports are more likely to trust the information when this is assured. Pflugrath et al. (2011) found that financial analysts from a sample of Australian, UK and US firms do perceive assured reports as more credible. This effect is stronger in industries which are socially, politically, and environmentally more sensitive. Simnett et al. (2009) did also find for an international sample that firms in particular in the mining, finance and utilities

industries have the need to enhance their credibility and therefore buy assurance. These industries have a larger social footprint and are therefore more visible. Increased credibility due to CSRA is also found for a sample of Taiwanese firms. External assurance will help in reducing information asymmetry and it will identify weaknesses and this will improve the information (Du & Wu, 2019).

There are also firm characteristics that influence the decision to obtain CSRA. Studies showed that larger firms are more likely to obtain CSRA. Larger firms undertake more activities that can affect the environment and therefore they are under a larger public examination. Moreover, larger firms have more shareholders who have an interest in proper CSR disclosure for making their investment decisions (Casey & Grenier, 2015; Moroney et al., 2012). Contrary to this, Bolla-Araya et al. (2019) did not find evidence that firm size influences the decision to obtain CSRA. They argued that the decision is more dependent on the intuitional environment, where they found that firms in stakeholder-oriented countries are more likely to obtain CSRA, which is in line with the findings of Simnett et al. (2009). Next to this, the presence of a Chief Sustainability Officer (CSO) does increase the chance that sustainability information is assured. This relationship becomes stronger when the CSO has sustainability expertise. The same holds for an environmental committee consisting of experts (Peters & Romi, 2015). There are also characteristics of the disclosure itself that determine the choice for assurance. For a sample of US firms, Cho et al. (2014) found that companies having more extensive CSR disclosure, are more likely to buy assurance. They are more likely to do so because CSRA is costly and therefore only companies which have truthful disclosure are willing to incur the extra costs. Therefore, there are different reasons for a firm to make the decision to assure their CSR information.

2.5 Moderating effect of CSRA on the relationship between CSP and CFP

Since companies obtain CSRA to increase the credibility of their CSR reports, the question arises if this increased credibility leads to other positive effects. If assured information is perceived more credible, it is likely that CSRA will also lead to higher quality disclosure. Moroney et al. (2012) showed for a sample of Australian firms that assurance indeed leads to higher credibility and reliability of disclosure and thus to higher quality reports. Ballou et al. (2018) found this for an international sample of firms. They argued that assurance will lead to the identification of more inconsistencies in prior reports and improvements in definitions, scopes and methodologies which are used in compiling the report. This in turn will lead to CSR reports with higher quality. Contrary to this, Michelon et al. (2015) found for firms from the London Stock Exchange that the use of assurance is rather symbolic than effective. So, CSRA will not lead to higher disclosure quality. This implies that CSRA is only used to influence the perceptions of stakeholders about the commitment to CSR disclosure. However, since they used a small sample, their findings cannot be generalized as they stated themselves. Next to the effect on quality, CSRA can also influence the reputation of the firm.

Birkey et al. (2016) found a positive relationship between CSRA and environmental reputation for a sample of US firms. This might explain why companies choose to buy assurance although it is expensive. A better environmental reputation can lead to a reduction in the exposure of social and political pressures, and it will attract more socially responsible investors.

Besides these effects on the quality of disclosure and reputation of the firm, the question is whether CSRA does have an effect on the relationship between CSP and CFP. Kim et al. (2019) already investigated the moderating role of CSRA on this relationship. They found for a sample of US firms that CSP has a positive effect on the CFP of a firm, and that this relationship is stronger when firms obtain CSRA. Financial performance was measured with the market value of the firm and Tobin's Q. Moreover, CSP was measured with the combined score of the environmental, social and governmental pillar⁴. They argued that better financial performance is due to the enhanced credibility and the reduction in information asymmetry. This last reasoning is also stated by Casey & Grenier (2015). They found that CSRA will lead to a lower cost of equity capital in the US. Moreover, they found that there are lower forecast errors. This is because assurance will enhance the credibility of CSR disclosure, and because information asymmetry is reduced. Weber (2018) argued that this effect is strongest for firms with a poor CSR performance. Poor performers do have the greatest benefit because with assurance they can distinguish themselves from greenwashers. It can be suspicious that poor performers are disclosing CSR information, but when they obtain CSRA they can show that this information is credible, and not an attempt to distract from the poor performance. They investigated this for a sample of US firms who report according to the GRI guidelines. Next to this, the effect of CSRA on market valuation has been investigated by Clarkson et al. (2019). They showed for an international sample of firms that in contrast to the disclosure of CSR information alone, the assurance of this information does affect the market value of a firm. As stated earlier, stakeholders need to perceive the CSP as credible, and if they do, this will lead to a higher CFP. Since studies indicated that CSRA will lead to more credibility of information about CSR, and also to more credibility about the performance of CSR, it is also likely that CSRA will have a positive influence on the relationship between CSP and CFP. This leads to the following hypothesis:

H2: The relationship between CSP and CFP will be stronger when CSRA has been obtained.

2.6 Effect of assurance provider

If CSRA does lead to a stronger relationship between CSP and CFP, it is also important to know if it matters who provided the assurance. Prior literature distinguishes two main groups of

⁴ The indicators in these pillars are resource use score, emissions score, innovation score, workforce score, human rights score, community score, product responsibility score, management score, shareholders score, CSR strategy score.

assurance providers: consultants who are specialized in sustainability and accounting firms. The group of accounting firms can again be divided in Big 4 accounting firms (Deloitte, EY, KPMG and PwC) and non-Big 4 firms. Ballou et al. (2019) found that an accounting firm as assurance provider is not more likely to identify more misstatements in a CSR report, but they do it in a timelier manner, and this prevents future inaccuracies. Other studies also showed that it does not matter if the assurance is provided by a consulting or accounting firm. Birkey et al. (2016) found that the positive relation between CSRA and environmental reputation is independent of the type of assurance provider. They argued that accountants might provide higher quality assurance as they have more experience with it, while on the other hand they might rather want to brand their name, and thus perform the assurance as symbolic. Consultants, on the contrary, might have more expertise on sustainability, but they are not having the same professional standards and independence as accountants. Considering these pros and cons, Birkey et al. (2016) argued that the effect of assurance provider can be neglected. Moreover, in the results of Moroney et al. (2012), who linked the assurance of environmental information to the quality of this information, no differences have been found between assurance from a professional accountant and from a consultant. However, other studies argued that assurance of accounting firms does lead to better quality reports and higher market valuation. Casey & Grenier (2015) found that the effect on a lower cost of capital due to CSRA is stronger when the assurance is provided by an accounting firm. Since they investigated this for a sample of US firms, they linked this finding to the fact that the qualitative assurance from consultants is not appropriate since stakeholders in the US would prefer assurance which is close to the assurance of financial statements, thus the assurance from accountants. Moreover, the reputation of accounting firms in the field of integrity, independence and professional skepticism is stronger. This is in line with the study of Hodge et al. (2009) who found in their study amongst students enrolled in an MBA program in Australia, that CSRA from a public accountant has a stronger positive effect on the confidence in the CSR report than CSRA from a specialist consultant, but this only holds for reasonable assurance. Also, Pflugrath et al. (2011) found that assurance reports from professional accountants are perceived more credible than assurance from sustainability experts, like consultants. They argued that this is because professional accountants have more expertise in assurance, are more familiar with it, and have the reputation of their brand.

The differences between CSRA from a Big 4 accounting firm and non-Big 4 accounting firm are mixed. The effect of CSRA on the cost of debt capital was not dependent on whether the assurance provider was a Big 4 accounting firm or a non-Big 4 accounting firm, although they did expect that this would be the case due to the better reputation in the field of integrity, independence, and professional skepticism (Kuo et al., 2021). However, this study only investigated a sample of Taiwanese firms. In contrast to this, Clarkson et al. (2019) found for their international sample that the positive relationship between CSRA and market valuation is stronger when this assurance is obtained

from a Big 4 accounting firm. Since prior literature is mixed about the assurance provider, this study asks whether the assurance form a Big 4 accountant moderates the relationship between CSP and CFP. Therefore, the effect of assurance provider on the CSP – CFP relationship is measured. Since Big 4 accountants are perceived to have higher integrity, independence, and professional skepticism, it is likely that this will have a positive effect on the relationship between CSP and CFP. This leads to the following hypothesis:

H3: *The relationship between CSP and CFP will be stronger when CSRA is obtained by a Big 4 accountancy company.*

The conceptual models with all three hypotheses are stated in Figure 1.

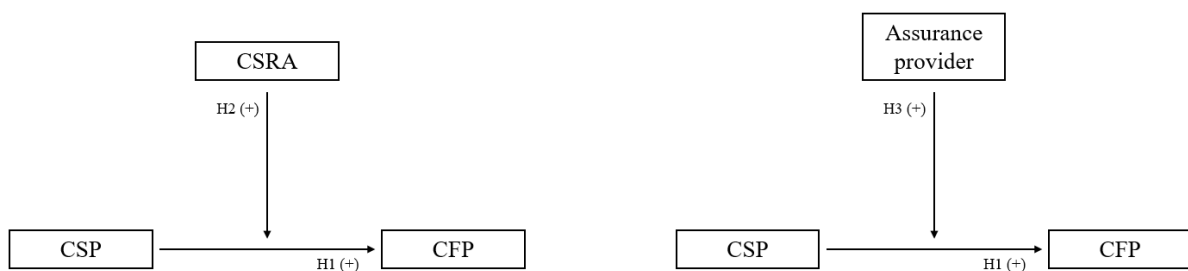


Figure 1 Conceptual models

3. Methodology

This chapter provides an overview of the methodology that is used to analyze the different hypotheses introduced in the previous chapter. First, an explanation will be provided about the used sample. Second, the different variables are introduced. Last, the different econometric models are presented.

3.1 Sample

An international sample of firms has been used of firms for the years 2015-2019. Since CSRA becomes more and more important, these recent years are most representative of the current situation. Moreover, data from years before 2015 is less complete, and therefore less information can be obtained for these years. Information about the year 2020 is often not complete yet, and due to the Covid-19 pandemic, financial performance might be biased. Therefore, data from 2020 is not obtained. Data is retrieved from the ESG dataset and the company financials from Refinitiv Eikon Datastream. To compare the different observations, it is necessary that the same currency is used throughout the whole sample. Therefore, all variables are obtained in the US dollar currency. This means that there is made use of the exchange rate given in Refinitiv Eikon Datastream. Firm-year observations are removed if there are missing values for one of the variables that are used, except for Assurance provider which is explained later. Moreover, firms from the Academic & Educational Services industry were removed since there were only 10 firm-year observations of this industry. Therefore, this industry was underrepresented and thus removed from the sample. Lastly, one observation was removed since there was no CSR disclosure for this observation, but assurance was obtained according to the data. Since this is impossible, this observation was also deleted. This leads to a final sample for which all observations did disclose CSR information. This sample consists of 2,668 firms and 8,760 firm-year observations from 56 countries. The division of the observations per country is given in Table 1. As can be seen the three biggest countries are United States (14.04%), Japan (9.46%), and the United Kingdom (6.75%).

Table 1 – Observations per country

<i>Country</i>	<i>Frequency</i>	<i>Percentual share</i>	<i>Cumulative share</i>
Argentina	45	0.51	0.51
Australia	296	3.38	3.89
Austria	63	0.72	4.61
Belgium	63	0.72	5.33
Brazil	220	2.51	7.84
Canada	323	3.69	11.53
Chile	86	0.98	12.51
China	169	1.93	14.44
Colombia	66	0.75	15.19
Cyprus	1	0.01	15.21

Czech Republic	3	0.03	15.24
Denmark	75	0.86	16.10
Egypt	2	0.02	16.12
Finland	126	1.44	17.56
France	501	5.72	23.28
Germany	396	4.52	27.80
Greece	52	0.59	28.39
Hong Kong	208	2.37	30.76
Hungary	15	0.17	30.94
India	211	2.41	33.34
Indonesia	88	1.00	34.35
Ireland	17	0.19	34.54
Israel	29	0.33	34.87
Italy	238	2.72	37.59
Japan	829	9.46	47.05
Jordan	4	0.05	47.10
Kenya	5	0.06	47.16
Kuwait	11	0.13	47.28
Malaysia	102	1.16	48.45
Mexico	108	1.23	49.68
Morocco	2	0.02	49.70
Netherlands	123	1.40	51.11
New Zealand	45	0.51	51.62
Norway	71	0.81	52.43
Oman	4	0.05	52.48
Peru	12	0.14	52.61
Philippines	41	0.47	53.08
Poland	63	0.72	53.80
Portugal	36	0.41	54.21
Qatar	12	0.14	54.35
Russian federation	94	1.07	55.42
Saudi Arabia	13	0.15	55.57
Singapore	131	1.50	57.07
South Africa	364	4.16	61.22
South Korea	294	3.36	64.58
Spain	197	2.25	66.83
Sri Lanka	3	0.03	66.86
Sweden	324	3.70	70.56
Switzerland	164	1.87	72.43
Taiwan	392	4.47	76.91
Thailand	116	1.32	78.23
Turkey	80	0.91	79.14
United Arab Emirates	5	0.06	79.20
United Kingdom	591	6.75	85.95
United States	1230	14.04	99.99
Vietnam	1	0.01	100.00
Total	8,760	100.00	

3.2 Variables

3.2.1 Dependent variable

The dependent variable is CFP. This is measured with accounting-based measures. Prior literature on the direct relationship between CSRA and financial performance focused mostly on market-based measures like market value of common equity, Tobin's Q, firm's share price, cost of equity and debt capital (Casey & Grenier, 2015; Cho et al., 2014; Clarkson et al., 2019; Kim et al., 2019; Kuo et al., 2021; Weber, 2018). To take a new perspective, this study uses accounting-based measures. Moreover, studies on the relationship between CSP and CFP itself used accounting-based measures like ROA, ROE and ROS (Clarkson et al., 2011; Waddock & Graves, 1997). The review of Orlitzky et al. (2003) also showed that studies use these accounting-based measures. Since these accounting-based measures are used in prior literature about CSP – CFP, and to expand on the market-based measures, this study will use accounting-based measures. Therefore, CFP will be measured by using ROA and ROE. Both measures are used to give a broader understanding of CFP.

3.2.2 Independent variables

The independent variable is CSP. In line with Braam & Peeters (2018), CSP will be measured by taking the sum of the environmental score and the social score, and then this score is divided by two. By doing this, equal weight is assigned to both scores. These scores are retrieved from the ESG dataset from Refinitiv Eikon Datastream by taking the environmental and social pillar score. The environmental pillar is composed by the following factors: resource use, emissions, and innovation. Resource use measures to what extent a company can reduce their use of materials, water, and energy, and to what extent they can improve their supply chain management and how to use more eco-efficient resources. Emissions assesses to what extent a company reduces their environmental emissions in production and operations. Innovation measures to what extent a company is reducing their environmental costs for their customers, and thus creating new opportunities by using new environmental technologies or eco-friendly products (Refinitiv, 2021). The social pillar is composed by the following factors: workforce, human rights, community, and product responsibility. Workforce is the extent to which a company is successful in providing the following factors: job satisfaction; a workplace which is healthy and safe; diversity and equal opportunities; and developing opportunities for employees. Human rights assesses the extent to which a company is effective in respecting human rights conventions. Community measures to what extent a company is committed to protect public health, being a good citizen and to respect business ethics. Product responsibility is the extent to which a company can produce goods and services of good quality; integrate health and safety of the customer; maintain integrity; and data protection (Refinitiv, 2021).

Two moderating variables are used. First, a dummy CSRA. This dummy will measure if a company obtains third-party assurance for their CSR disclosure. CSR disclosure means that the

company publishes a separate CSR/H&S (health and safety)/sustainability report or that they publish a section in their annual report about CSR/H&S/sustainability. The CSRA variable measures if a company obtains third-party assurance, but it does not measure to what extent the assurance is given or by whom. The other moderating variable is Assurance provider. This variable measures if the obtained assurance is given by a Big 4 accounting firm (Deloitte, EY, KPMG or PwC), if this is given by another party or if no assurance is given. To create this variable, the name of the auditor is taken from the ESG dataset from Refinitiv Eikon Datastream.

3.2.3 Control variables

There are different control variables added to minimize the possibility that an omitted variable is missing. The first control variable is firm size (Size), since this can influence the financial performance of a firm as stated by Barnett & Salomon (2012). However, they did find a significant effect of zero or no effect of Size. Therefore, their study found that Size did not influence financial performance. Taking it algebraic, if total assets increases this means that Size will increase as well, since Size is measured as the natural logarithm of total assets. If net income stays equal, this means that ROA will decrease and thus that there is a negative effect of Size on ROA. The same holds for ROE if debt stays equal, because then equity needs to increase if the amount of assets increases. Therefore, a negative coefficient is expected for Size. Leverage (LEV) is included because the amount of debt can influence managers behavior, where these decisions can affect financial performance. Prior research found a negative effect of LEV on ROA and ROE (Barnett & Salomon, 2012; Waddock & Graves, 1997). Different studies control for the growth of the firm (Clarkson et al., 2011; D'Amato & Falivena, 2020). In this study there will be controlled for growth with the market-to-book ratio (MTB) measured as market capitalization divided by book value. It is the expectation that growth will also lead to a higher financial performance. Prior research included the amount of R&D expenses because innovative technological and marketing competences can lead to a creation of value for the firm (Barnett & Salomon 2012). However, since there is lack of availability for this variable, R&D expenses are not included. There are not enough observations to include this as a control variable. Another control variable is the scope of the CSR report (CSRscope). It is argued that companies with a good CSP will also disclose more CSR information, to signal their good performance (Clarkson et al., 2008). Thus, if a company discloses more CSR information, and has a broader CSR scope, it is likely that a company has a good CSP, and this in turn will lead to a higher financial performance. Finally, an industry dummy will be included. Performance differs per industry and certain industries could have problems in different social areas (Waddock & Graves, 1997). There is made use of the Thomson Reuters Business Classification schema from the Refinitiv Eikon Datastream database. Companies are divided into different economic sectors which are: basic materials, consumer cyclicals, consumer non-cyclicals, energy, financials, healthcare, industrials, real

estate, technology, and utilities. These economic sectors are divided into different industries, which are divided again in different activities. Considering the size of the sample, there is made use of the ten different economic sectors and not of the 136 industries.

3.3 Econometric models

To test the different hypotheses, different regression equations are estimated. There is made use of OLS regressions with year and industry dummies included to control for unobservable, but unchanging industry and time effects. Using OLS and including industry and year dummies is in line with the research of Kim et al. (2019). An overview of the variables is given in Table 2.

Table 2 – Overview of variables

<i>Dependent variable</i>	
ROA	(Net income – bottom line + ((interest expense on debt – interest capitalized) * (1 - tax rate))) / average of last year's and current year's total assets * 100.
ROE	(Net income – bottom line – preferred dividend requirement) / average of last year's and current year's common equity * 100.
<i>Independent variables</i>	
CSP	(Social pillar score + environmental pillar score) / 2
CSRA	A dummy variable set 1 if the company's CSR disclosure is assured, or 0 otherwise.
Assurance provider	A categorical variable with three categories, set 0 if no CSRA is given, 1 if CSRA is given by a non-Big 4 firm and set 2 if CSRA is given by a Big 4 firm.
<i>Control variables</i>	
Size	The natural logarithm of total assets.
LEV	Total debt / total assets.
MTB	(Market price at year end * common shares outstanding) / total assets – total liabilities.
CSRscope	The percentage of activities from the company covered in the CSR disclosure.
Industry	A dummy variable indicating to which industry (basic materials, consumer cyclicals, consumer non-cyclicals, energy, financials, healthcare, industrials, real estate, technology and utilities) an observation belongs.
Year	A dummy variable indicating to which year an observation belongs.

Model for hypothesis 1:

$$CFP_{i,t} = \beta_0 + \beta_1 CSP_{i,t} + \beta_2 Size_{i,t} + \beta_3 LEV_{i,t} + \beta_4 MTB_{i,t} + \beta_5 CSRscope_{i,t} + Industry_{i,t} + Year_i + \varepsilon_{i,t} \quad (1)$$

Model for hypothesis 2:

$$CFP_{i,t} = \beta_0 + \beta_1 CSP_{i,t} + \beta_2 CSRA_{i,t} + \beta_3 CSP*CSRA_{i,t} + \beta_4 Size_{i,t} + \beta_5 LEV_{i,t} + \beta_6 MTB_{i,t} + \beta_7 CSRscope_{i,t} + Industry_{i,t} + Year_i + \varepsilon_{i,t} \quad (2)$$

Model for hypothesis 3:

$$CFP_{i,t} = \beta_0 + \beta_1 CSP_{i,t} + \beta_2 NonBig4_{i,t} + \beta_3 Big4_{i,t} + \beta_4 CSP*NonBig4_{i,t} + \beta_5 CSP*Big4_{i,t} + \beta_6 Size_{i,t} + \beta_7 LEV_{i,t} + \beta_8 MTB_{i,t} + \beta_9 CSRscope_{i,t} + Industry_{i,t} + Year_i + \varepsilon_{i,t} \quad (3)$$

Where CFP can be ROA or ROE. NonBig4 and Big4 are two of the three categories from the Assurance provider variable, this means that No CSRA will be used as reference category in model (3). Furthermore, CSP*CSRA is an interaction term between CSP and CSRA, CSP*NonBig4 is an interaction term between CSP and NonBig4, and CSP*Big4 is an interaction term between CSP and Big4.

4. Results

This chapter gives an overview of the results from the performed empirical analyses, which is done to obtain an answer to the research question. First, the descriptive statistics of the main variables are presented and discussed. Second, a Pearson correlation matrix shows how the variables are correlated to each other. Third, the OLS assumptions are discussed. Fourth, the regression results are presented, followed by an additional analysis and robustness checks.

4.1 Descriptive statistics

The descriptive statistics are presented in Table 3. Included are the mean, median, standard deviation, 1st and 99th percentile of the variables used. ROA, ROE, LEV, and MTB have been winzorized at the 1st and 99th percentile because the minimum and maximum contained extreme values. By winzorizing these variables, these outliers have been reduced. The winzorized variables are presented in Table 3. Compared to the study of Waddock & Graves (1997), the mean value of ROA of 5.465%, and ROE of 12.937%, are almost the same. Waddock & Graves (1997) found a mean value of 0.055 and 0.139 respectively⁵. Companies in this sample do have a CSP above average with a mean of 63.777, since CSP is measured on a scale between 0 and 100. Compared to Waddock & Graves (1997) the mean value of leverage is slightly higher with a value of 0.263 compared to the mean value of 0.203 of Waddock & Graves. Also, the market-to-book ratio, with a value of 0.903 is an average value. The median of CSRscope is 100, which means that over 50% of the companies in the sample cover all their activities in their CSR disclosure. Moreover, the mean value of CSRA is 0.793, meaning that around 80% of the firm-year observations in this sample obtained assurance over their CSR disclosure. This is high compared to the earlier mentioned study of KPMG (2020) which stated that around 50% of the companies who report on CSR disclosure obtain CSRA. Since the used sample only contained observations for which there was CSR disclosure obtained, it is expected that the mean of CSRA would be around this 50%. The high percentage can be due to the fact that only companies were selected about which information was available if the company obtains CSRA or not. It therefore excludes a lot of companies who do not obtain CSRA, since if assurance is not obtained, there is often also no information about assurance. The variable Assurance provider consists of three categories and therefore of three dummy variables (No CSRA, NonBig4 and Big4). All three are included in Table 3. There are less observations since there are missing values created for observations for which CSRA had value 1 but information was missing about the assurance provider. For these cases it was not clear if CSRA was obtained by a non-Big 4 or a Big 4 firm and thus these observations were replaced with a missing value for Assurance provider. However, these missing

⁵ There should be noted that ROA and ROE are measured in percentages in this study.

values are included in the analysis of hypothesis 1 and 2 since these observations are still useful for these hypotheses. Looking at the mean values of NonBig4 and Big4 there can be determined that 33.9% of this sample obtained CSRA from a Non-Big 4 firm, and 43.1% obtained assurance from a Big4 firm. This adds up to the fact that 77% did obtain CSRA. This is slightly lower than the mean of the CSRA variable itself and this is due to the created missing values of Assurance provider.

Table 3 – Descriptive statistics

<i>Variables</i>	<i>Obs.</i>	<i>Mean</i>	<i>Median</i>	<i>Std. Dev.</i>	<i>p1</i>	<i>p99</i>
ROA	8760	5.465	4.670	5.905	-13.260	28.120
ROE	8760	12.937	11.090	18.400	-47.930	108.560
CSP	8760	63.777	65.533	17.234	20.820	93.115
Size	8760	16.237	16.084	1.730	12.684	20.792
LEV	8760	0.263	0.254	0.161	0.000	0.690
MTB	8760	0.903	0.569	2.793	-11.268	16.116
CSRscope	8760	87.029	100	24.846	6.640	100
CSRA	8760	0.793	1	0.405	0	1
Assurance provider = 0 (No CSRA)	7913	0.229	0	0.420	0	1
Assurance provider = 1 (NonBig4)	7913	0.339	0	0.474	0	1
Assurance provider = 2 (Big4)	7913	0.431	0	0.495	0	1

Table 4 represents the mean values per industry. The most interesting points that stand out are the relatively low ROA for the financial industry and the relatively high ROA for the healthcare industry. Due to industry specifics this does not surprise. Financial companies do not have a lot of assets, but companies in the healthcare industry do have more assets. Moreover, ROE is relatively low for the energy industry and relatively high for the consumer non-cyclicals industry. Moreover, Size is relatively high for the financials industry and MTB is relatively high for the healthcare industry and relatively low for the financials industry. CSRA is the lowest in the real estate sector. These differences in industries show that it is important to control for industry effects.

4.2 Pearson correlation matrix

To see whether there is multicollinearity present between the different variables, a Pearson correlation matrix is included in Table 5. If multicollinearity is present, it means that two or more independent variables are correlated to each other (Woolridge, 2013). The Pearson correlation can lay between -1 and 1. There is no strict number when the correlation is too high, and thus when there is multicollinearity. However, different texts provide an indication of which correlation is too high. Studenmund & Johnson (2017) suggest that a correlation of 0.8 is too high. Woolridge (2013) suggest that an absolute correlation of 0.9 is too high. As can be seen, the correlation between ROA and ROE is 0.764 and significant. However, this is not a problem since these are both used as dependent

Table 4 – Mean values of variables per industry

<i>Industry</i>	<i>Obs</i>	<i>ROA</i>	<i>ROE</i>	<i>CSP</i>	<i>Size</i>	<i>LEV</i>	<i>MTB</i>	<i>CSR</i>	<i>CSRA</i>	<i>No</i>	<i>Non</i>	<i>Big4</i>
								<i>scope</i>		<i>CSRA</i>	<i>Big4</i>	
Basic materials	1,204	5.027	9.501	62.500	15.587	0.267	0.691	89.991	0.772	0.246	0.315	0.440
Consumer cyclicals	1,061	7.393	16.325	65.409	15.666	0.253	0.967	83.239	0.832	0.192	0.358	0.450
Consumer non-cyclicals	792	7.344	18.317	65.278	15.841	0.266	1.153	83.853	0.761	0.265	0.317	0.419
Energy	540	4.276	7.325	63.571	16.479	0.281	0.869	94.090	0.743	0.285	0.277	0.439
Financials	1,223	2.206	12.131	62.044	18.423	0.181	0.317	89.780	0.827	0.192	0.304	0.504
Healthcare	388	8.536	17.587	67.187	15.872	0.241	1.983	87.728	0.776	0.251	0.366	0.383
Industrials	1,448	5.106	12.992	63.027	15.712	0.273	0.936	82.242	0.802	0.221	0.365	0.414
Real estate	587	5.937	10.565	65.846	15.984	0.362	0.663	90.495	0.680	0.339	0.350	0.312
Technology	984	6.678	14.531	64.093	15.994	0.248	1.463	84.914	0.823	0.193	0.428	0.379
Utilities	533	4.495	9.629	62.065	16.589	0.362	0.621	91.713	0.837	0.186	0.270	0.544

Table 5 – Pearson correlation matrix

	<i>ROA</i>	<i>ROE</i>	<i>CSP</i>	<i>Size</i>	<i>LEV</i>	<i>MTB</i>	<i>CSR</i>	<i>CSRA</i>	<i>No</i>	<i>NonBig4</i>	<i>Big4</i>
							<i>scope</i>		<i>CSRA</i>		
ROA	1.000										
ROE	0.764***	1.000									
CSP	0.006	0.047***	1.000								
Size	-0.254***	-0.037***	0.359***	1.000							
LEV	-0.131***	-0.010	0.013	0.027**	1.000						
MTB	0.208***	0.192***	0.079***	-0.034***	-0.031***	1.000					
CSRscope	0.056***	0.044***	-0.025**	-0.048***	0.025**	0.015	1.000				
CSRA	-0.032***	0.005	0.258***	0.222***	-0.016	0.007	-0.067***	1.000			
No CSRA	0.037***	-0.002	-0.281***	-0.235***	0.017	-0.009	0.071***	-1.000	1.000		
NonBig4	-0.005	0.010	0.055***	0.050***	-0.024**	0.014	-0.066***	0.391***	-0.391***	1.000	
Big4	-0.026**	-0.008	0.186***	0.151***	0.008	-0.006	0.002	0.475***	-0.475***	-0.624***	1.000

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

variables and not as independent variables. Because both measure CFP it is not surprising that these two variables are correlated to each other. There is a slightly positive correlation of 0.006 between CSP and ROA, however this is not significant and therefore nothing can be concluded from this. There is also a slightly positive correlation of 0.047 between CSP and ROE which is significant at a 1%-level. These positive signs are in line with previous studies (Barnett & Salomon, 2012; Kim et al., 2019; Waddock & Graves, 1997). Besides the high correlation between ROA and ROE, all other variables have an absolute correlation of 0.624 or lower and therefore there is no multicollinearity present, according to the Pearson correlation matrix.

4.3 Testing of OLS assumptions

Before the regressions can be performed, several assumptions need to be tested. This section contains these assumptions for the main analysis, but also for the additional and robustness checks. First, it is necessary that all variables are measured at interval level. This is the case since the dependent variables are continuous and the independent variables are continuous as well or defined as dummies. Second, the model should correctly be specified, this means that there should be linearity between the dependent and the independent variables. This is tested with a residual vs. fitted values plot. These plots can be found in Appendix A. As can be seen, there is a slightly downward sloping relationship for Figure 2, 3 and 5. However, there should be noted that the dependent variables are winzORIZED and therefore the figures look a bit odd. However, since there is no clear pattern visible, there is assumed that this assumption is met. For Figure 4 the residuals are equally distributed around the zero line, but there are two outliers visible. These are inspected and one observation has a very low MV compared to the other observations and the other observation had a low value for Size compared to the other observations. Third, there should be tested if the residuals are normally distributed. This is done with use of Q-Q plots. Ideally, the small blue line should be followed. As can be seen, the real relationship shows a wave format for Figure 6 and 7 and thus the residuals are not completely normally distributed. Moreover, for Figure 9 there is a big wave at the top of the plot. To solve these problems, there is made use of robust standard errors. Fourth, there is tested for heteroskedasticity. This is done with use of a Breusch-Pagan/Cook-Weisberg test for heteroskedasticity. The value of the Prob>chi2 statistic was below 0.05, which means that the null hypothesis of constant variance was rejected, and thus that heteroskedasticity is present. The presence of heteroskedasticity means that the error terms do not have a constant variance (Studenmund, 2017). This can lead to biased standard errors and thus biased results. This is already solved by using robust standard errors. Last, there is tested for multicollinearity. As stated before, based on the Pearson correlation matrix there is no multicollinearity present. Moreover, there is a VIF test performed, these results can be found in Appendix A as well. A common rule is that if $VIF > 5$, then the multicollinearity is serious (Studenmund, 2017). As can be seen in Table 8, for models 1

multicollinearity is not present. For models 2 and 3 higher VIF factors are present, but this is due to the interaction effects. Because the interaction effects are included the VIF factors for CSP are probably high because they interact with their interaction terms. Regressions with the same variables are performed, without the interaction terms to see whether the VIF factors would decrease, and this was indeed the case.

4.4 Regression results

This subsection provides the results from the models presented in chapter 3.3. First model (1) is tested in which the relationship between CSP and CFP is investigated. Then the moderating effect of CSRA is considered in model (2). Lastly, there is looked into the moderating effect of assurance provider in model (3). The variable CSP is centered around the mean before the interaction term is calculated for interpretation purposes in model (2) and (3). If CSP is not centered, the main effects of CSRA, NonBig4 and Big4 in these two models would reflect the effect when there is a value of 0 for CSP. Since CSP does not take value 0, it does not make sense to interpret the results in this way. By mean centering, the main effect of CSRA reflects the effect when there is a value of 63.777 (the mean value) for CSP. The main effect of NonBig4 and Big4 reflect the effect when there is a value of 63.936 for CSP. This small difference occurs because the sample for the measurement of model (3) is smaller because of the created missing values for the variable Assurance provider. There is no need to mean center CSRA, NonBig4, and Big4 since they can take value 0.

The results are presented in Table 6. For model (1) there was a positive effect expected from CSP on CFP. As the results indicate, CSP does have a positive effect on both ROA and ROE. This means that if CSP increases by 1 point, ROA will increase with 0.015 and ROE will increase with 0.048. Since the coefficients are highly significant (at a 1% significance interval), H1 cannot be rejected. The signs of the coefficients of the control variable Size are in line with results from prior research (Waddock & Graves, 1997), and in line with the algebraic expectation. LEV and MTB are also in line with prior research (Clarkson et al., 2011; D'Amato & Falivena, 2020; Waddock & Graves, 1997), except from the coefficient of LEV on ROE, but since this coefficient is not significant, there cannot be concluded anything from this coefficient. LEV has a negative sign which means that if a company has a higher leverage (meaning a higher increase in debt than an increase in assets) ROA will be lower. MTB has a positive sign which means that if a company is growing, it will also have a higher financial performance. As expected, the sign for CSRscope is positive and significant, meaning that when a company is reporting on more of their activities in their CSR disclosure, this positively influences their CFP. For model (2) there was expected that CSRA would have a positive effect on the relationship between CSP and CFP. The results show that there are no significant effects for the interaction terms. Therefore, H2 needs to be rejected. Moreover, there are no

Table 6 – Regression results with ROA and ROE as dependent variable

	Model (1)		Model (2)		Model (3)	
	ROA	ROE	ROA	ROE	ROA	ROE
CSP	0.015*** (0.004)	0.048*** (0.012)	0.013 (0.008)	0.058** (0.026)	0.012 (0.008)	0.058** (0.026)
CSRA			0.037 (0.172)	-0.042 (0.567)		
CSP*CSRA			0.003 (0.009)	-0.013 (0.028)		
NonBig4					-0.098 (0.188)	-0.069 (0.627)
Big4					0.072 (0.189)	-0.202 (0.615)
CSP*NonBig4					0.013 (0.010)	0.028 (0.033)
CSP*Big4					-0.005 (0.010)	-0.051 (0.031)
Size	-0.600*** (0.0542)	-0.505*** (0.168)	-0.602*** (0.0543)	-0.502*** (0.168)	-0.592*** (0.058)	-0.463*** (0.176)
LEV	-5.306*** (0.422)	2.051 (1.696)	-5.301*** (0.421)	2.035 (1.692)	-5.358*** (0.445)	1.485 (1.793)
MTB	0.356*** (0.034)	1.168*** (0.114)	0.356*** (0.034)	1.168*** (0.114)	0.364*** (0.037)	1.169*** (0.121)
CSRscope	0.016*** (0.002)	0.043*** (0.007)	0.016*** (0.002)	0.043*** (0.007)	0.016*** (0.002)	0.043*** (0.007)
Constant	12.621*** (0.882)	7.719*** (2.628)	13.558*** (0.963)	10.801*** (2.874)	13.441*** (1.017)	10.409*** (3.000)
Industry dummies	Included	Included	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included	Included	Included
Observations	8,760	8,760	8,760	8,760	7,913	7,913
R-squared	0.171	0.070	0.171	0.070	0.169	0.070

*Robust standard errors are presented in parentheses. $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

significant coefficients found for the main effects of CSP and CSRA for ROA as the dependent variable. For ROE as dependent variable, significant effects are found for CSP. This positive effect means that if CSRA is included in the model and does have a value of 0, and CSP will increase by 1, ROE will increase with 0.058. The control variables do again have the same signs as for model (1). For model (3) there was expected that a Big 4 accountancy company as assurance provider would have a positive effect on the relationship between CSP and CFP. So, that the relationship between CFP and CSP becomes stronger when assurance is obtained by a Big 4 company. Model (3) finds for both ROA and ROE as dependent variable an insignificant interaction effect of CSP*Big4. Moreover, there is no significant effect found for the interaction effect of CSP*NonBig4. This means that both non-Big4 and Big 4 CSRA do not have an effect on the CSP – CFP relationship. Therefore, hypothesis 3 should be rejected. There is a significant main effect of CSP on ROE, meaning that if there is no CSRA present, an increase of 1 point in CSP will lead to an increase of 0.058 in ROE. This is in line with the results of model (2). Regarding the control variables, the same results are found as for model (1) and (2).

4.5 Additional analysis

Waddock & Graves (1997) showed that a better CSP in one year, lead to a better CFP in the next year. Therefore, the question arises if there is an effect on the financial performance in the year after CSP is measured. Therefore, models (1) to (3) are tested with ROA_{t+1} and ROE_{t+1} as dependent variable. The results can be found in Table 7. The number of observations is reduced since only observations are included for the years 2015-2018 because 2019 is excluded due to the included time lag of ROA and ROE. Moreover, CSP is centered at the mean for interpretation purposes in model (2a) and (3a). The results of model (1a) indicate that CSP does also have a positive effect on ROA_{t+1} and ROE_{t+1} . This means that if CSP is increased 1 point in year t, ROA will increase with 0.016 in year t+1 and ROE will increase with 0.057 in year t+1. This gives more support that H1 cannot be rejected. Regarding the control variables, the same results are found as for model (1), except for LEV. LEV does have a negative effect on ROA_{t+1} and a positive effect on ROE_{t+1} . This positive effect on ROE_{t+1} is not surprising since a higher LEV means that debt is increasing more than assets. This also means that if debt is increasing, this will lead to a decrease in equity, and this in turn will boost ROE, and thus a positive relationship is expected between LEV and ROE. Again, for model (2a) there is no significant moderating effect of CSRA found. This gives therefore more support to reject H2. The main effect of CSP on CFP is still present. This means that if there is controlled for CSRA, and CSRA does have value zero, an increase of 1 point in CSP will lead to an increase of 0.020 in ROA_{t+1} and of 0.062 in ROE_{t+1} . The results of the control variables of model (2a) are in line with model (1a). The results of model (3a) do not represent significant results for the interaction effect of CSP and Big4,

Table 7 – Regression results with ROA_{t+1} and ROE_{t+1} as dependent variable

	Model (1a)		Model (2a)		Model (3a)	
	ROA _{t+1}	ROE _{t+1}	ROA _{t+1}	ROE _{t+1}	ROA _{t+1}	ROE _{t+1}
CSP	0.016*** (0.004)	0.057*** (0.014)	0.020** (0.010)	0.062** (0.029)	0.018* (0.010)	0.059** (0.030)
CSRA			-0.002 (0.204)	-0.064 (0.659)		
CSP*CSRA			-0.004 (0.010)	-0.007 (0.032)		
NonBig4					-0.116 (0.223)	-0.162 (0.736)
Big4					-0.032 (0.224)	-0.273 (0.716)
CSP*NonBig4					0.001 (0.012)	0.017 (0.038)
CSP*Big4					-0.009 (0.012)	-0.028 (0.035)
Size	-0.589*** (0.062)	-0.518*** (0.194)	-0.589*** (0.061)	-0.516*** (0.195)	-0.543*** (0.065)	-0.409** (0.203)
LEV	-3.365*** (0.491)	7.163*** (1.972)	-3.368*** (0.490)	7.154*** (1.968)	-3.324*** (0.526)	6.761*** (2.127)
MTB	0.348*** (0.042)	1.215*** (0.140)	0.348*** (0.042)	1.215*** (0.141)	0.345*** (0.046)	1.201*** (0.151)
CSRscope	0.017*** (0.002)	0.046*** (0.008)	0.017*** (0.002)	0.046*** (0.008)	0.017*** (0.003)	0.048*** (0.008)
Constant	12.416*** (1.004)	6.477** (3.026)	13.468*** (1.093)	10.114*** (3.314)	12.653*** (1.160)	8.463** (3.450)
Industry dummies	Included	Included	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included	Included	Included
Observations	6,396	6,380	6,396	6,380	5,690	5,675
R-squared	0.156	0.072	0.156	0.072	0.152	0.070

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

which is in line with model (3). There are only significant coefficients found for CSP, meaning that if NonBig4 and Big4 are included in the model, but have value zero, an increase of 1 point in CSP will lead to an increase of 0.018 in ROA_{t+1} and an increase of 0.059 in ROE_{t+1} . Again, the results of the control variables are in line with model (1a) and (2a).

4.6 Robustness checks

To check whether the original model is a strong model, different robustness checks are performed. With the robustness checks, small changes are adopted in the model to see if the results of the original model do hold.

4.6.1 Other measure for financial performance

In line with Barnett & Salomon (2012) there is checked if the predicted relationships hold for other kinds of financial performance. Their initial analysis is performed by investigating the effect of CSP on ROA and net income. But to check the robustness of the obtained results, they investigated the effect of CSP on financial returns and market capitalization. Moreover, as stated before, prior literature investigated the effect of CSP and CSRA on both accounting-based measures as well as market-based measures. To check the robustness of the results, models (1) to (3) are investigated with a market-based measure for CFP, namely the market value of common equity (MV). This measure is used because it is used in previous studies about the relationship between CSP, CSRA and CFP (Cho et al., 2015; Clarkson et al., 2019; Kim et al., 2019; Matsumara et al., 2014). Table 11 in Appendix B provides the results of this analysis. Since MV had an exponential form, it was transformed into a log variable. With this no missing values were created. CSP is centered around the mean for model (2b) and (3b) for interpretation purposes. The results of model (1b) are in line with the results of model (1). There is a positive effect found of CSP on $\log(MV)$. This means that if CSP increases with 1 point, MV will increase with 0.5%. The effect of Size is different from the effect in model (1). Here the effect of Size is positive, meaning that a bigger company will have a higher market value. This difference can lay in the fact how CFP is measured, where an increase of total assets leads to a decrease in ROA and ROE *ceteris paribus*, this is not necessarily the case for MV. Moreover, this positive coefficient is in line with previous research of Clarkson et al. (2019), who used market value as well as dependent variable. The results of model (2b) indicate again that H2 should be rejected. Since the interaction effect between CSP and CSRA is not significant, there is no moderating effect of CSRA on the relationship between CSP and CFP. CSP itself is still positively correlated to CFP, meaning that in the case that there is controlled for CSRA and this has value zero, an increase of 1 point in CSP will lead to an increase of 0.7% in MV. CSRA itself is negatively correlated to MV. This means that for a company with a mean value of CSP (63.777), the adoption of assurance will lead to a

decrease of 9.5% in MV. The effects of the control variables are in line with model (1b). Model (3b) finds a significant interaction effect between CSP and Big4. However, in contrast to the expectation, the coefficient is negative. This means that compared to no assurance, CSRA from a Big 4 firm will lead to a weaker relationship between CSP and CFP. Therefore, hypothesis 3 still needs to be rejected. Moreover, significant main effects are found for CSP, NonBig4 and Big4. Meaning that if the variable Assurance provider is included in the model, but does have value zero, an increase of one point in CSP will lead to an increase of 0.7 in MV. This is in line with the results of model (2b). Moreover, if a company has a mean value of CSP (63.936), the adoption of NonBig4 CSRA will lead to a decrease of 12.7% in MV, and the adoption of CSRA by a Big 4 firm will lead to a decrease of 9.1% in MV. The coefficients of the control variables are in line with the results for model (1b) and (2b).

4.6.2 Effect of stakeholder/shareholder-oriented countries

Prior studies indicate that there are differences between stakeholder- and shareholder-oriented countries in the effects of CSP and CSRA. Husted & De Sousa-Filho (2017) found that the relationship between sustainability governance and CSP is stronger in stakeholder-oriented countries. They argue that there is a greater awareness to the public and legal protection which will lead to the achievement of more CSP. Therefore, it might be the case that the relationship between CSP and CFP will be mostly present in countries which are stakeholder oriented. The study of Braam & Peeters (2018) found that the fact whether a country is more stakeholder- or more shareholder-oriented has an influence on the choice to obtain CSRA. Stakeholders in stakeholder-oriented countries do have more influence in decisions that are made within the organization compared to shareholder-oriented countries. Moreover, in stakeholder-oriented countries, there is more attention to sustainable value creation, and there is also more need for credibility of the CSR information. So, there is a chance that the effect of CSRA will be bigger in stakeholder-oriented countries because this need for credibility will be higher. This can in turn lead to an indirect effect on financial performance. Taken this all into account, it can be that although in the original models there has not been found a moderating effect of CSRA, there might be a moderating effect found of CSRA on the CSP – CFP relationship in stakeholder-oriented countries, and not in shareholder-oriented countries. Furthermore, the effect of Big4 might differ between stakeholder- and shareholder-oriented countries. The distinction between shareholder- and stakeholder-oriented countries will be based on La Porta et al. (1997), where civil law countries (French, German, and Scandinavian origin) are considered to be more stakeholder oriented, and common law countries (English origin) are considered to be more shareholder oriented. This distinction is made because common law countries have the strongest protection of their outside investors, so shareholders. Civil law countries have the weakest protection of their outside investors, but they do have stronger protection of their creditors (La Porta et al., 2000). This classification between stakeholder- and shareholder-oriented countries is in line with Braam & Peeters (2018) and

Simnett et al. (2009). In Table 12 in Appendix C there can be found how the countries are divided. Observations from Qatar and Saudi Arabia are removed since their origin of law is mostly Sharia law and therefore difficult to either classify as a stakeholder- or a shareholder-oriented country. This results in the fact that 25 firm-year observations were deleted.

The descriptive statistics for stakeholder-oriented countries can be found in Table 13 and the descriptive statistics for shareholder-oriented countries can be found in Table 14 in Appendix C. The mean value of ROA and ROE are both higher for shareholder-oriented countries compared to stakeholder-oriented countries. The mean value of CSP is slightly higher for stakeholder-oriented countries compared to shareholder-oriented countries. This might be because stakeholders perceive sustainable behavior as more important. As expected, the mean value of CSRA is higher for stakeholder-oriented countries compared to shareholder-oriented countries. This is in line with the research of Braam & Peeters (2018), who found that companies in stakeholder-oriented countries are more likely to obtain CSRA. Moreover, the mean value of Big4 is higher for stakeholder-oriented countries. This might be because companies in stakeholder-oriented countries are more likely to obtain assurance from a Big 4 accounting firm, or simply because these companies obtain more often assurance, and thus the share in Big4 is higher as well. The mean value of CSRscope is higher in shareholder-oriented countries. So, although companies in these countries do have a lower CSP on average, they do disclose on more activities in their CSR disclosure. But in turn, they are less likely to assure this information.

To see whether there are differences in the different models, all regressions are performed for the two subsamples. The results can be found in Table 15 and 16 in Appendix C. The results for model (1c) and (2c) in stakeholder-oriented countries are not significant. This contrasts with the expectations. This means that if only stakeholder-oriented countries are considered, H1 and H2 need to be rejected. There is a significant interaction effect found between CSP and NonBig4 in model (3c). This positive coefficient means that if CSRA is obtained from a non-Big 4 firm, the relationship between CSP and ROA will become stronger. This contrasts with the expectation that CSRA from a Big4 firm would lead to a stronger relationship between CSP and CFP. Therefore, H3 needs to be rejected for stakeholder-oriented countries. Moreover, a significant coefficient is found for the main effect of NonBig4. This means that if CSP does have value 64.429 (the mean for the stakeholder-oriented observations, taking into account that there are missing values for the variable Assurance provider), the act of obtaining CSRA from a non-Big 4 firm will lead of an increase of 0.027 in ROA. For ROE as dependent variable, no significant effects are found. The effects of the control variables are in line with model (1), (2) and (3), except for the effect of LEV on ROE. A negative effect of LEV is found on ROE, which contrasts to the expectation that an increase in debt will lead to a decrease in equity, which will in turn boost ROE, leading to a positive relationship between LEV and ROE.

However, this negative effect is in line with Waddock & Graves (1997), who did find a negative effect of LEV on ROE.

The results for model (1d) for shareholder-oriented countries are significant. If there is an increase of 1 point in CSP, this will lead to an increase of 0.038 in ROA and 0.012 in ROE. Since both coefficients are positive, it means that H1 cannot be rejected for countries in shareholder-oriented countries. There is only a significant effect found for the interaction of CSP and CSRA for ROE as dependent variable. This means that (at a 10% confidence level), the moderating effect of CSRA on the relationship between CSP and ROE will be 0.077. This means that H2 can only be rejected for ROA in shareholder-oriented countries. Moreover, there is an effect found of CSP on ROA if there is controlled for CSRA. If CSRA has value zero in this case and CSP will increase by 1 point, this will lead to an increase of 0.025 in ROA. There is also an effect found for CSRA on ROE. In the case of a mean value of CSP (63.225), the adoption of assurance will lead to an increase of 1.439 in ROE. Model (3d) shows a significant positive interaction effect between CSP and NonBig4. This shows that obtaining CSRA from a non-Big 4 firm will lead to an increase in the relationship between CSP and ROE. This still leads to rejection of the third hypothesis for shareholder-oriented countries. Furthermore, the main effects of CSP, NonBig4 and Big4 on ROA are significant. This means that if the variable Assurance provider has value 0, an increase of 1 point in CSP will lead to an increase of 0.024 in ROA, and if CSP has its mean value for this sample (63.328), the adoption of non-Big 4 CSRA will lead to an increase of 0.539 in ROA and the adoption of Big 4 CSRA will lead to an increase of 0.645 in ROA. The results of the control variables are in line with the results of model (1a), (2a) and (3a).

4.6.3 Endogeneity between CFP and CSP

Where most studies investigate the effect from CSP on CFP, Waddock & Graves (1997) also showed that there is an effect from CFP on CSP. This means that there might be reversed causality in the used sample. According to Lahouel et al. (2019), this is one of the reasons why endogeneity may occur. To solve an endogeneity problem caused by reversed causality, a dynamic model can be used where the lagged dependent variable is included as independent variable (Lahouel et al., 2019; Leszczensky & Wolbring, 2019). Including a lagged dependent variable leads to the following set of models:

$$CFP_{i,t} = \beta_0 + \beta_1 CFP_{i,t-1} + \beta_2 CSP_{i,t} + \beta_3 Size_{i,t} + \beta_4 LEV_{i,t} + \beta_5 MTB_{i,t} + \beta_6 CSRscope_{i,t} + Industry_{i,t} + Year_i + \varepsilon_{i,t} \quad (1')$$

$$CFP_{i,t} = \beta_0 + \beta_1 CFP_{i,t-1} + \beta_2 CSP_{i,t} + \beta_3 CSRA_{i,t} + \beta_4 CSP * CSRA_{i,t} + \beta_5 Size_{i,t} + \beta_6 LEV_{i,t} + \beta_7 MTB_{i,t} + \beta_8 CSRscope_{i,t} + Industry_{i,t} + Year_i + \varepsilon_{i,t} \quad (2')$$

$$CFP_{i,t} = \beta_0 + \beta_1 CFP_{i,t-1} + \beta_2 CSP_{i,t} + \beta_3 NonBig4_{i,t} + \beta_4 Big4_{i,t} + \beta_5 CSP * NonBig4_{i,t} + \beta_6 CSP * Big4_{i,t} + \beta_7 Size_{i,t} + \beta_8 LEV_{i,t} + \beta_9 MTB_{i,t} + \beta_{10} CSRscope_{i,t} + Industry_{i,t} + Year_i + \varepsilon_{i,t} \quad (3')$$

Where CFP can be ROA or ROE. Where NonBig4 and Big4 are two of the three categories from the Assurance provider variable, this means that No CSRA will be used as reference category.

Furthermore, CSP*CSRA is an interaction term between CSP and CSRA, CSP*NonBig4 is an interaction term between CSP and NonBig4, and CSP*Big4 is an interaction term between CSP and Big4.

To estimate these models there is made use of two-step system GMM, which is more robust and efficient than difference GMM (Lahouel et al., 2019). The results can be found in Table 17 of Appendix D. In line with the main analysis, CSP is centered before it is used as interaction variable for interpretation purposes. By including the lagged dependent variable, the number of observations is reduced since the effect for the year 2015 could not be taken into account because there was no information for CFP of 2014 obtained. The Hansen statistic gives an indication if the instruments are valid. Roodman (2009) indicates that models with a p-value below 0.1 should not be used, since he states that there should not be taken comfort in these models. Model (1') and (2'), both with ROA as dependent variable, can therefore not be used since they have p-values of 0.015 and 0.016. Therefore, these models will not be analyzed further. Furthermore, a p-value of the Hansen statistic above 0.25 should be a sign for potential problems of too many instruments, and therefore they are a sign of potential trouble (Roodman, 2009). Since the other p-values are all above 0.25, the results should be considered with caution. The AR2 statistics indicate that the different models do not suffer from second order auto correlation, since the p-values are not significant ($p \geq 0.621$). For all the models there can be concluded that the lagged dependent variable indeed has a positive effect on the dependent variable. This means that an increase in last year's CFP will also lead to an increase in current year's CFP. Furthermore, for model (1') there can be concluded that CSP does positively influence ROE at a 1% significance level. The signs of the coefficients of the control variables are in line with the coefficients of model (1). However, since the Hansen statistic has a p-value of 0.428 these results should be considered with caution. For model (2') with ROE as dependent variable, there is no significant effect found for the interaction between CSP and CSRA. This is in line with the results of model (2). There is still a positive effect present of CSP on ROE, which means that if CSRA is included in the model and has value zero, an increase of 1 point in CSP will give an increase of 0.055 in ROE. However, again, since the Hansen statistic has a value of 0.432 these results should be considered with caution. For model (3') there are no significant interactions present between Assurance provider and CSP. This is in in line with model (3). However, there are some significant main effects found. CSP still positively influences ROE, and there is a negative effect present of NonBig4 on CFP. This means that if CSP has its mean value of 63.936, the adoption of NonBig4

assurance will lead to a decrease of 9.278 in ROA, and the adoption of Big4 assurance will lead to an increase of 7.168 in ROA. However, the p-values of the Hansen statistic are very high with a value of 0.535 and 0.686, and therefore the results should be considered with severe skepticism.

5. Conclusion and discussion

This research aims to deepen the understanding of the relationship between CSP and CFP, and to investigate the effect of CSRA and assurance provider on this relationship. By doing so, this research extends the prior research of Kim et al. (2019), which investigated the moderating effect of CSRA on the CSP – CFP relationship in a US setting, by taking an international sample and by taking accounting-based measures of CFP as other measures of CFP instead of a market-based measures. Moreover, this research extends on prior research about the direct relationship between CSRA and CFP, where CFP is measured in several ways (Casey & Grenier, 2015; Cho et al., 2014; Clarkson et al., 2019; Horn et al., 2018; Lajmi & Paché, 2020). By looking at the effect of assurance provider, and specifically the effect of Big 4 assurance or not, it extends literature about the mixed effect of Big 4 assurance on CFP (Clarkson et al., 2019; Kuo et al., 2021; Moroney et al., 2012). This all led to the investigated research question: *“What is the effect of CSRA and the choice of assurance provider on the relationship between CSP and CFP in an international setting?”* By investigating three separate hypotheses there is tried to give an answer to this question.

Regarding the first hypothesis, there was a positive effect expected between CSP and CFP. The results of the main models indicate that this hypothesis cannot be rejected, and therefore there can be concluded that there is a positive effect of CSP on CFP present. This is in line with previous studies of Kim et al. (2019) and Waddock & Graves (1997). These studies also found a positive effect of CSP on CFP. Moreover, these findings are supported by the additional analysis where CFP_{t+1} is used as dependent variable. This means that CSP measured in year t does have a positive effect on CFP in year t+1. Thus, how well a company is performing on their social performance influences the financial performance in the same and the next year. Moreover, there is support found for hypothesis 1 in the robustness check in which CFP is measured with a market-based measure, namely market value of common equity. Interestingly, when the sample is divided in shareholder- and stakeholder-oriented groups, the original results only hold for shareholder-oriented countries and no relationship is found between CSP and CFP for stakeholder-oriented countries. This is not in line with the expectation. The expectation was that that the effect of CSP would be stronger in stakeholder-oriented countries, since the achievement of CSP is higher in stakeholder-oriented countries (Husted & De Sousa-Filho, 2017). Therefore, it was also expected that an effect of CSP on CFP would be found in stakeholder-oriented countries. Moreover, there is a positive relationship found between CSP and ROE in the GMM model. However, there cannot be concluded that this indicates that the positive relationship between CSP and ROE does still hold when there is corrected for endogeneity. This is because of the high value of the Hansen statistic. Since the Hanssen statistic for model (1') with ROA as dependent variable was too low, there can also not be concluded that the relationship between CSP and ROA does hold when there is corrected for endogeneity. Overall, there can be concluded that hypothesis 1 is supported and that CSP does have a positive effect on CFP.

Regarding the second hypothesis, there was expected that the relationship between CSP and CFP would be stronger in the case that CSRA was obtained. The results of the main analysis indicate that this hypothesis should be rejected and thus that the CSP – CFP relationship does not become stronger when CSRA is obtained. No significant effects of CSRA on the CSP – CFP relationship were found. This contrast with the study of Kim et al. (2019) who did find that CSRA does moderate the relationship between CSP and CFP. However, they did only measure a sample of US firms, and they used a market-based measure for CFP. However, also the robustness check in which CFP is measured with market value of common equity shows no significant effect of CSRA. The differences between this study and the study of Kim et al. (2019) may therefore be found in the fact that an international sample is used in contrast to a US sample. There is also a difference in the measurement of CSP, since Kim et al. (2019) made also use of the governmental pillar from the ESG dataset from Refinitiv Eikon Datastream. Furthermore, the mean value of CSRA is high in this study, with a mean of 0.793, compared to how many companies obtain CSRA nowadays, which is around 50% (KPMG, 2020). This can also explain why the effect of CSRA on the CSP – CFP relationship might be different than expected. Another explanation might be that an effect of CSRA will only be present for firms with a poor CSR performance. As Weber (2018) found that the effect of CSRA on a lower cost of equity capital in the US is the strongest for firms with a poor CSR performance, it might be the case that this holds for this relationship as well. Since the average CSP is 63.777, it might be that this sample contained too much good performers. Moreover, there are also no significant effects found in the additional analysis with CFP_{t+1} as dependent variable. This shows also that the second hypothesis should be rejected. There was expected that the insignificant results might be present since differences between stakeholder- and shareholder-oriented countries exist. Prior literature found that CSRA is more important in stakeholder-oriented countries, since the need for credibility of CSR information is higher (Braam & Peeters, 2018). Therefore, it was expected that a significant effect would be found in stakeholder-oriented countries, and not in shareholder-oriented countries. Surprisingly, there is no significant effect found for the interaction effect of CSP and CSRA in stakeholder-oriented countries, and thus the relationship between CSP and CFP will not become stronger if CSRA is obtained in these countries. In contrast, there is a positive interaction found for CSP and CSRA with ROE as dependent variable in shareholder-oriented countries. However, this is only significant at a 10% significance level. There can thus be concluded that there is a weak positive effect of CSRA on the relationship between CSP and ROE in shareholder-oriented countries. Taking the research of Braam & Peeters (2018) into account, while the need for credibility of CSR disclosure is higher in stakeholder-oriented countries, it might be that the effect of CSRA on financial performance can be neglected. If it is more common to obtain CSRA in these countries, it might be that the valuation of the company is not affected by CSRA since it is not a surprise for investors if CSRA is obtained. And thus, their valuations will not be adjusted after they see that CSRA is obtained. If so, there will be no moderating effect of CSRA found on the CSP – CFP relationship. With this same reasoning it might be the case

that CSRA is more valued by investors in shareholder countries. Since it is more a surprise for them if CSRA is obtained, this might change their valuations of the company if they see that CSRA is obtained. Regarding the endogeneity analysis, there cannot be concluded that the results of model (2) are robust for endogeneity because of the low Hansen statistic for ROA as dependent variable and the high Hansen statistic for ROE as dependent variable. Overall, there can be concluded that no significant effects were found for the moderating role of CSRA, except from weak evidence in shareholder countries. This indicates that the relationship between CSP and CFP is not influenced by the decision of obtaining CSRA or not.

Regarding the third hypothesis, there was expected that CSRA obtained by a Big 4 accounting firm would strengthen the relationship between CSP and CFP. The findings of the main model indicate that CSRA coming from a Big 4 firm does not have an effect on the relationship between CSP and CFP. Moreover, CSRA from a non-Big 4 firm also does not influence the CSP – CFP relationship. This shows that it does not matter if there is looked at differences in assurance provider for the effect of CSRA, there is still no effect of CSRA on the CSP – CFP relationship. This is in line with the results for hypothesis 2. This is supported by the additional analysis with CFP_{t+1} as dependent variable. Interestingly, where the interaction between CSP and CSRA was not found significant in the model with market value as dependent variable, the model with Assurance provider included shows that specifically CSRA from a Big 4 firm does have an effect on the CSP – CFP relationship. However, in contrast to the expectation, the findings indicate that if CSRA is obtained by a Big 4 accounting firm, the relationship between CSP and CFP will be weakened. This means that companies should not obtain CSRA from a Big 4 firm, since it will harm the positive effect that their CSP can have on their market value. This finding contrasts to the study of Clarkson et al. (2019) who found that the relationship between CSRA and market valuation is stronger when assurance is obtained by a Big 4 firm. However, other literature is mixed about the effect of assurance provider, and therefore it is not surprisingly that this finding contrasts with the study of Clarkson et al. (2019) since it might be the case that there is no clear influence of Big 4 (Birkey et al., 2016; Casey & Grenier, 2015; Kuo et al., 2012; Moroney et al., 2012). When looking at the differences between stakeholder- and shareholder-oriented countries, the findings are not as expected. For stakeholder-oriented countries there is a positive effect found of non-Big 4 CSRA on the relationship between CSP and ROA, and for shareholder-oriented countries there is a positive effect found of non-Big 4 CSRA on the relationship between CSP and ROE. This last finding explains which kind of CSRA explains the positive interaction effect of CSP and CSRA on ROE from model (2d). Both contrast again with the study of Clarkson et al. (2019). When there is controlled for endogeneity, no significant interaction effects are found. Again, the Hansen statistics are high for this model, and therefore there cannot be concluded anything about the robustness of the results. Overall, there is no support that CSRA obtained by a Big 4 firm does positively influence the CSP – CFP relationship. There is even small

evidence that this assurance would harm this relationship, and that CSRA from a non-Big 4 firm would be beneficial to the CSP – CFP relationship.

5.1 Limitations

This research contains several limitations. First, the used sample has a relatively high percentage of firms obtaining assurance. As stated in the introduction, 50% of the companies reporting on sustainability obtained assurance over this sustainability reporting (KPMG, 2020). Since the sample only contained observations for which CSR disclosure was disclosed, it was expected that the mean value of CSRA would be around this 50%. However, looking at the mean value, around 80% of the companies obtained CSRA, which is high compared to the expectation. Therefore, the results may have been biased, since it is not a representative sample of firms since the number of companies who do obtain CSR disclosure but do not assure it are underrepresented. Second, the sample for the additional analysis is reduced. This happened because a time lag was included for ROA and ROE. This caused that data about CSP from the year 2019 was not included in the model because ROA and ROE were not obtained for the year 2020. Therefore, it is not possible to state the exact differences between the main model and the additional analysis. Third, the extend of assurance is not considered. Therefore, there can only be concluded what the effect is of the act of assurance, but not what the effect is if assurance is more extended or not. This might explain why CSRA is not significant in the model, as it could be significant if CSRA was divided in a sample with CSRA over more of the CSR disclosure and over less of the CSR disclosure. Fourth, prior literature suggests that there are also differences between consultancy and accounting firms as assurance provider (Casey & Grenier, 2015; Hodge et al., 2009; Pflugrath et al., 2011). Since this study only investigates the difference between assurance from a Big4 accounting firm or other assurance provider, this does not give the full picture of the effect of assurance provider. Fifth, the samples in the stakeholder/shareholder analysis are not matched. Therefore, the results might be biased since the samples are not completely comparable. Moreover, some of the observations from the main sample needed to be removed because there could not be determined what kind of country it should be based on the origin of law. Therefore, the sample size was slightly reduced. Last, there were missing values for the variable Assurance provider, leading to a reduced sample size of the third hypothesis. Therefore, the differences between the second and third hypothesis cannot be subtracted with full confidence.

5.2 Future research

This research has deepened the understanding of the relationship between CSP and CFP, and the effect of CSRA on this relationship. To broaden this understanding more, it is first suggested to

make use of a sample of firms for which the percentage of obtained assurance is more in line with the real-life situation of around 50%. By doing this, the results will become more generalizable to the current situation. Second, to extend the understanding of the effect of assurance provider, the differences between accounting and consulting firms can be used. This supports the understanding of the effect of assurance provider and thus about the act of obtaining assurance as well. Third, there can be investigated what the effect is of the extent of assurance. This will give a more accurate picture of the effect of obtaining CSRA, since it might matter if assurance is only given over a part of the CSR disclosure or over all the CSR disclosure. Fourth, there can be investigated what the effect is of specifically first time CSRA. Casey & Grenier (2015) investigated what the effect was of first time CSRA on the cost of equity capital. It could be the case that if it is common to obtain CSRA, no effect will be found anymore on CFP, but that specifically first time CSRA does have an effect. Therefore, it might be interesting to perform the same analysis again with first time assurance as moderating variable. Last, the effect of CSRA can be investigated on the relationship between the change in CSP and the change in CFP. Clarkson et al. (2011) found that an increase of environmental performance is followed by an increase in financial performance. It might be interesting to investigate if CSRA is an incentive for this relationship. Therefore, it is suggested to investigate this as well in future research.

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Appendix A – OLS assumptions



Figure 2 Residuals vs fitted values graph for models 1, 1a, 1c, 1d, 2, 2a, 2c, 2d, 3, 3a, 3c, and 3d with ROA as dependent variable

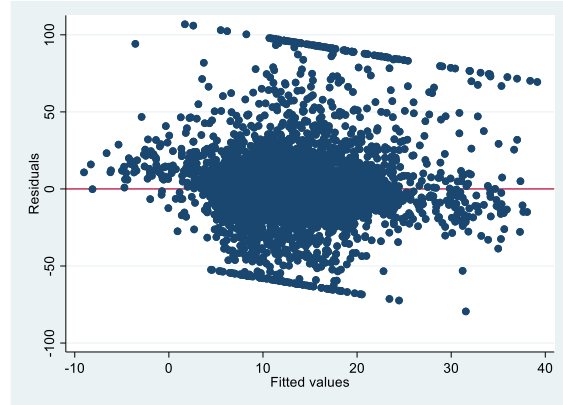


Figure 3 Residuals vs fitted values graph for models 1, 1a, 1d, 2, 2a, 2d, 3, 3a, and 3d with ROE as dependent variable

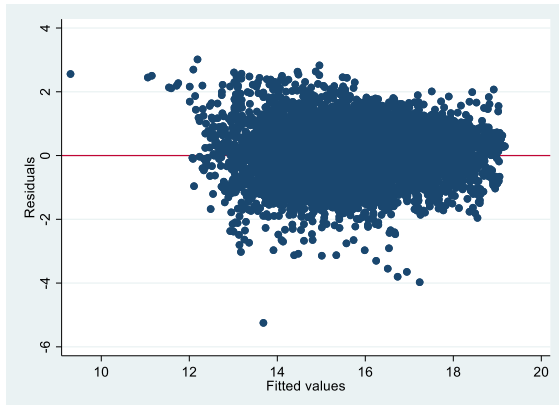


Figure 4 Residuals vs fitted values graph for models 1b, 2b and 3b

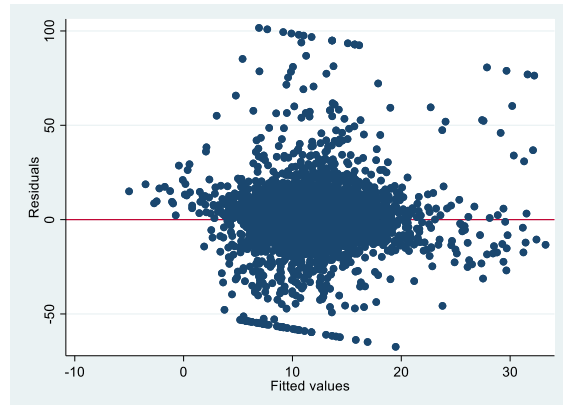


Figure 5 Residuals vs fitted values graph for models 1c, 2c, and 3c for ROE as dependent variable

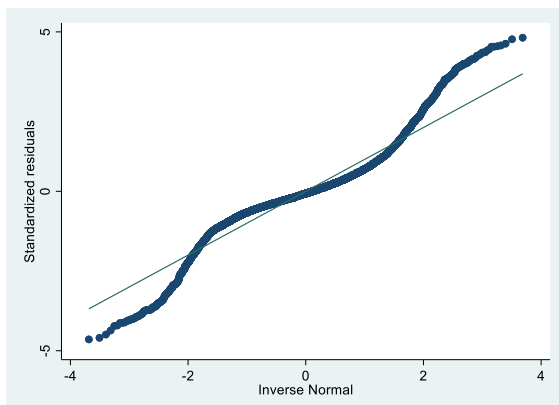


Figure 6 Q-Q plot for models 1, 1a, 1c, 1d, 2, 2a, 2c, 2d, 3, 3a, 3c, and 3d with ROA as dependent variable

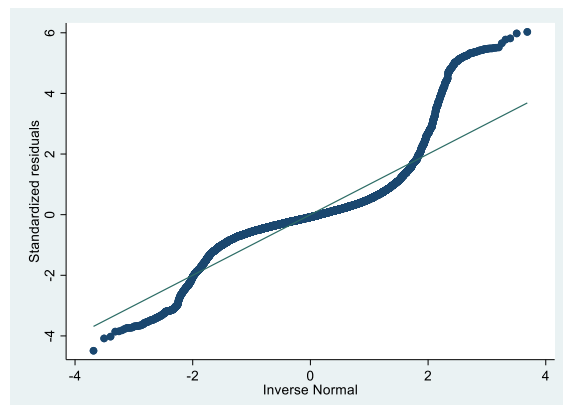


Figure 7 Q-Q plot for models 1, 1a, 1d, 2, 2a, 2d, 3, 3a, and 3d with ROE as dependent variable

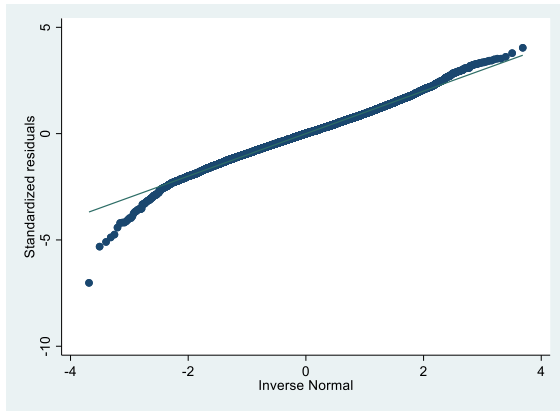


Figure 8 Q-Q plot for models 1b, 2b and 3b

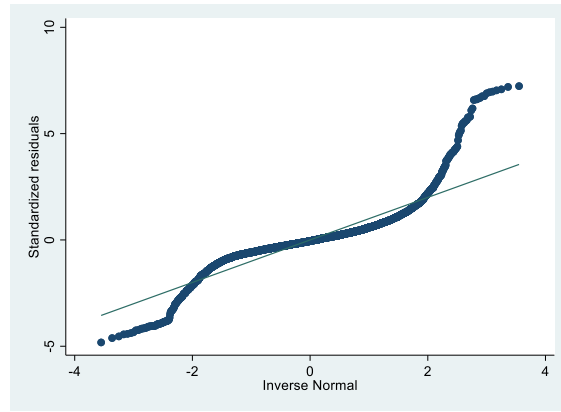


Figure 9 Q-Q plot for models 1c, 2c, and 3c for ROE as dependent variable

Table 8 – VIF factors models 1

Panel A: model 1, 1a, 1b, 1c	
<i>Variable</i>	<i>VIF</i>
CSP	1.22 – 1.28
Size	1.84 – 1.89
LEV	1.12 – 1.14
MTB	1.03
CSRscope	1.04 – 1.06

Panel B: model 1d	
<i>Variable</i>	<i>VIF</i>
CSP	1.45
Size	1.94
LEV	1.20
MTB	1.04
CSRscope	1.01

Table 9 – VIF factors models 2

Panel A: model 2, 2a, 2b	
<i>Variable</i>	<i>VIF</i>
CSP	5.07 – 5.16
CSRA	1.25 – 1.26
CSP*CSRA	4.62 – 4.68
Size	1.89 – 1.93
LEV	1.13 – 1.14
MTB	1.03
CSRscope	1.04

Panel B: model 2c	
<i>Variable</i>	<i>VIF</i>
CSP	7.05
CSRA	1.41
CSP*CSRA	6.68
Size	1.94
LEV	1.12
MTB	1.04
CSRscope	1.07

Panel C: model 2d	
<i>Variable</i>	<i>VIF</i>
CSP	3.78
CSRA	1.16
CSP*CSRA	3.27
Size	1.97
LEV	1.20
MTB	1.04
CSRscope	1.01

Table 10 – VIF factors models 3

Panel A: model 3, 3a, 3b	
<i>Variable</i>	<i>VIF</i>
CSP	4.58
NonBig4	1.97 – 1.98
Big4	2.03 – 2.06
CSP*NonBig4	2.30 – 2.32
CSP*Big4	2.82 – 2.87
Size	1.87 – 1.91
LEV	1.13
MTB	1.03 – 1.04
CSRscope	1.04 – 1.05

Panel B: model 3c	
<i>Variable</i>	<i>VIF</i>
CSP	6.44
NonBig4	2.70
Big4	2.78
CSP*NonBig4	2.77
CSP*Big4	4.32
Size	1.95
LEV	1.12
MTB	1.05
CSRscope	1.08

Panel C: model 3d	
<i>Variable</i>	<i>VIF</i>
CSP	3.39
NonBig4	1.55
Big4	1.55
CSP*Big4	2.06
CSP*NonBig4	1.91
Size	1.98
LEV	1.19
MTB	1.04
CSRscope	1.02

Appendix B – Other measure of CFP

Table 11 – Regression results with log(MV) as dependent variable

	Model (1b)	Model (2b)	Model (3b)
	logMV	logMV	logMV
CSP	0.005*** (0.001)	0.007*** (0.001)	0.007*** (0.001)
CSRA		-0.096*** (0.023)	
CSP*CSRA		-0.008 (0.001)	
NonBig4			-0.127*** (0.025)
Big4			-0.091*** (0.025)
CSP*NonBig			0.000 (0.001)
CSP*Big4			-0.004*** (0.001)
Size	0.793*** (0.007)	0.797*** (0.007)	0.801*** (0.008)
LEV	-1.076*** (0.061)	-1.084*** (0.061)	-1.082*** (0.065)
MTB	0.068*** (0.005)	0.068*** (0.005)	0.068*** (0.005)
CSRscope	0.003*** (0.000)	0.003*** (0.000)	0.002*** (0.000)
Constant	2.489*** (0.114)	2.822*** (0.124)	2.782*** (0.131)
Industry dummies	Included	Included	Included
Year dummies	Included	Included	Included
Observations	8,760	8,760	7,913
R-squared	0.742	0.742	0.744

*Robust standard errors are presented in parentheses. $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

Appendix C – Stakeholder- and shareholder-oriented countries

Table 12 – Stakeholder- and shareholder-oriented countries

<i>Stakeholder-oriented countries</i>	<i>Shareholder-oriented countries</i>
Argentina	Australia
Austria	Canada
Belgium	Cyprus
Brazil	Hong Kong
Chile	India
China	Ireland
Colombia	Israel
Czech Republic	Kenya
Denmark	Malaysia
Egypt	New Zealand
Finland	Oman
France	Singapore
Germany	South Africa
Greece	Sri Lanka
Hungary	United Kingdom
Indonesia	United States
Italy	
Japan	
Jordan	
Kuwait	
Mexico	
Morocco	
Netherlands	
Norway	
Peru	
Philippines	
Poland	
Portugal	
Russian Federation	
South Korea	
Spain	
Sweden	
Switzerland	
Taiwan	
Turkey	
United Arab Emirates	
Vietnam	

<i>Percentual share stakeholder-oriented countries</i>	<i>59.24</i>	<i>Percentual share shareholder-oriented countries</i>	<i>40.76</i>
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Table 13 – Descriptive statistics stakeholder-oriented countries

<i>Variables</i>	<i>Obs.</i>	<i>Mean</i>	<i>Median</i>	<i>Std. Dev.</i>	<i>p1</i>	<i>p99</i>
ROA	5175	5.144	4.350	5.254	-8.56	25.09
ROE	5175	11.694	10.750	14.518	-33.850	66.180
CSP	5175	64.263	66.215	17.232	20.750	93.660
Size	5175	16.281	16.079	1.701	12.851	21.135
LEV	5175	0.261	0.249	0.159	0.000	0.686
MTB	5175	0.848	0.523	2.500	-8.526	12.35
CSRscope	5175	83.374	100	27.558	4.900	100
CSRA	5175	0.849	1	0.358	0	1
Assurance provider = 0 (No CSRA)	4741	0.165	0	0.371	0	1
Assurance provider = 1 (NonBig4)	4741	0.320	0	0.466	0	1
Assurance provider = 2 (Big4)	4741	0.516	1	0.500	0	1

Table 14 – Descriptive statistics shareholder-oriented countries

<i>Variables</i>	<i>Obs.</i>	<i>Mean</i>	<i>Median</i>	<i>Std. Dev.</i>	<i>p1</i>	<i>p99</i>
ROA	3560	5.927	5.210	6.705	-13.260	28.120
ROE	3560	14.726	11.800	22.801	-47.930	108.560
CSP	3560	63.225	64.590	17.117	21.490	92.710
Size	3560	16.170	16.095	1.772	12.565	20.614
LEV	3560	0.266	0.257	0.165	0.000	0.690
MTB	3560	0.987	0.631	3.176	-11.268	16.116
CSRscope	3560	92.317	100	19.051	11.000	100
CSRA	3560	0.714	1	0.452	0	1
Assurance provider = 0 (No CSRA)	3151	0.323	0	0.468	0	1
Assurance provider = 1 (NonBig4)	3151	0.371	0	0.483	0	1
Assurance provider = 2 (Big4)	3151	0.306	0	0.461	0	1

Table 15 – Regression results with ROA and ROE as dependent variable for stakeholder-oriented countries

	Model (1c)		Model (2c)		Model (3c)	
	ROA	ROE	ROA	ROE	ROA	ROE
CSP	0.002 (0.004)	0.005 (0.012)	-0.009 (0.010)	-0.002 (0.028)	-0.010 (0.010)	-0.003 (0.028)
CSRA			-0.205 (0.246)	0.193 (0.712)		
CSP*CSRA			0.015 (0.011)	0.007 (0.031)		
NonBig4					-0.467* (0.263)	-0.545 (0.777)
Big4					-0.017 (0.259)	0.761 (0.746)
CSP*NonBig					0.027** (0.013)	0.0305 (0.034)
CSP*Big4					0.004 (0.012)	-0.0217 (0.035)
Size	-0.656*** (0.062)	-0.782*** (0.171)	-0.651*** (0.062)	-0.792*** (0.172)	-0.636*** (0.065)	-0.783*** (0.184)
LEV	-6.448*** (0.492)	-8.854*** (1.863)	-6.462*** (0.492)	-8.851*** (1.865)	-6.617*** (0.522)	-9.458*** (1.973)
MTB	0.326*** (0.046)	0.949*** (0.140)	0.325*** (0.046)	0.949*** (0.140)	0.337*** (0.050)	0.982*** (0.151)
CSRscope	0.011*** (0.002)	0.019*** (0.007)	0.011*** (0.002)	0.019*** (0.007)	0.010*** (0.002)	0.016** (0.007)
Constant	16.106*** (1.031)	21.736*** (2.675)	16.370*** (1.081)	22.007*** (2.840)	16.284*** (1.144)	22.240*** (3.007)
Industry dummies	Included	Included	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included	Included	Included
Observations	5,175	5,175	5,175	5,175	4,741	4,741
R-squared	0.207	0.064	0.207	0.064	0.209	0.069

*Robust standard errors are presented in parentheses. $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

Table 16 – Regression results with ROA and ROE as dependent variable for shareholder-oriented countries

	Model (1d)		Model (2d)		Model (3d)	
	ROA	ROE	ROA	ROE	ROA	ROE
CSP	0.038*** (0.008)	0.119*** (0.025)	0.025** (0.012)	0.061 (0.040)	0.024** (0.012)	0.058 (0.041)
CSRA			0.659*** (0.243)	1.439* (0.837)		
CSP*CSRA			0.0143 (0.014)	0.077* (0.045)		
NonBig4					0.539** (0.272)	1.438 (0.944)
Big4					0.645** (0.304)	1.121 (1.049)
CSP*NonBig4					0.015 (0.016)	0.099* (0.055)
CSP*Big4					0.027 (0.017)	0.071 (0.055)
Size	-0.655*** (0.096)	-0.550* (0.312)	-0.685*** (0.096)	-0.616** (0.311)	-0.669*** (0.102)	-0.529 (0.327)
LEV	-4.301*** (0.735)	15.305*** (3.032)	-4.202*** (0.732)	15.604*** (3.033)	-4.030*** (0.778)	15.911*** (3.256)
MTB	0.349*** (0.047)	1.252*** (0.162)	0.348*** (0.047)	1.249*** (0.161)	0.352*** (0.051)	1.229*** (0.174)
CSRscope	0.011** (0.005)	0.031* (0.016)	0.010* (0.006)	0.029* (0.016)	0.013** (0.006)	0.038** (0.017)
Constant	11.088*** (1.478)	0.215 (4.653)	13.489*** (1.695)	7.696 (5.304)	12.948*** (1.810)	5.829 (5.557)
Industry dummies	Included	Included	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included	Included	Included
Observations	3,560	3,560	3,560	3,560	3,151	3,151
R-squared	0.186	0.134	0.188	0.135	0.185	0.134

*Robust standard errors are presented in parentheses. $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

Appendix D – Analysis for endogeneity

Table 17 – GMM regression results with ROA and ROE as dependent variable

	Model (1')		Model (2')		Model (3')	
	ROA	ROE	ROA	ROE	ROA	ROE
ROA _{t-1}	0.347*** (0.044)		0.347*** (0.044)		0.343*** (0.058)	
ROE _{t-1}		0.343*** (0.051)		0.343*** (0.051)		0.338*** (0.062)
CSP	0.009** (0.004)	0.039*** (0.013)	0.008 (0.009)	0.055** (0.028)	0.002 (0.009)	0.055* (0.028)
CSRA			-0.040 (0.189)	-0.172 (0.570)		
CSP*CSRA			0.002 (0.010)	-0.020 (0.029)		
NonBig4					-9.278*** (3.191)	7.408 (10.030)
Big4					7.168*** (2.568)	-7.201 (7.939)
CSP*NonBig4					-0.156 (0.263)	-1.151 (1.031)
CSP*Big4					0.067 (0.181)	0.786 (0.697)
Size	-0.345*** (0.068)	-0.324* (0.189)	-0.344*** (0.068)	-0.316* (0.189)	-0.291*** (0.109)	-0.452 (0.283)
LEV	-3.705*** (0.527)	0.208 (1.838)	-3.706*** (0.526)	0.182 (1.837)	-4.660*** (1.198)	3.340 (3.164)
MTB	0.262*** (0.039)	0.877*** (0.139)	0.262*** (0.039)	0.876*** (0.139)	0.304*** (0.052)	0.937*** (0.171)
CSRscope	0.011*** (0.002)	0.027*** (0.007)	0.010*** (0.002)	0.027*** (0.007)	0.001 (0.005)	0.034** (0.016)

Constant	8.364*** (1.186)	6.506** (2.857)	8.963*** (1.280)	9.060*** (3.191)	8.743*** (1.843)	8.673** (4.351)
Company fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES
Year dummies	Included	Included	Included	Included	Included	Included
Observations	7,465	7,469	7,465	7,469	6,764	6,767
AR2 (P-value)	0.704	0.658	0.703	0.658	0.950	0.621
Hansen (P-value)	0.015	0.428	0.016	0.432	0.536	0.686

*Standard errors are presented in parentheses. $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*