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**Master's Thesis Economics (MAN-MTHEC)**

# **The Effectiveness of Existing Legislation in preventing Unethical Corporate Behavior by EU Firms**

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## **Abstract**

The aim of my study is to investigate whether the NFRD and BEPS Action 13 have made EU corporations behave ethically better. As this research is written from a stakeholder perspective, it is believed that firms should keep society and the planet into consideration when operating. Hereby, CSR performance and corporate tax avoidance are seen as two important matters. The first one is divided into an environment pillar score and a social pillar score (granted by LSEG Workspace). The latter is measured by means of the variable ETR. Graphical presentations and (static) time series regression analyses were used to check the hypotheses that are central. For starters, the results do not provide proof for the existence of a positive connection between the NFRD and CSR performance. Also, the assumption that CbC reporting negatively impacts corporate tax avoidance is not supported either. In fact, it is even determined that CbC reporting and corporate tax avoidance are positively linked at a 5% significance level. Additionally, inconsistent with my expectation, (semi-)strong evidence is found for ETR to be negatively influenced by Environment\_Pillar\_Score and Social\_Pillar\_Score.

Overall, my master's thesis suggests that existing legislation is not effective in preventing unethical corporate behavior by EU firms.

### **Keywords**

BEPS Action 13 – Corporate Tax Avoidance – CbC Reporting – CSR / CSR Performance – Ethics of Corporate Behavior – Mandatory CSR Reporting – NFRD – Stakeholder Theory

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## List of Abbreviations

<b>Abbreviation</b>	<b>Definition</b>
BEPS	Base Erosion and Profit Shifting
CbC	Country-by-Country
CBCR	Country-by-Country reporting
CSR	Corporate Social Responsibility
CSRD	Corporate Sustainability Reporting Directive
e.g.	for example
ESG	Environmental, Social, and Governance
ESRS	European Sustainability Reporting Standards
ETR(s)	effective tax rate(s)
EU	European Union
G20	Group of 20
H	hypothesis
i.e.	that is
IES	Institute of Economic Studies
ifo	Leibniz Institute for Economic Research at the University of Munich
LSEG	London Stock Exchange Group
MNCs	multinational corporations
MNEs	multinational enterprises
n.d.	no date
NFRD	Non-Financial Reporting Directive
No.	number
OECD	Organization for Economic Cooperation and Development
(p)p.	page(s)
ROA	return on assets
SD	standard deviation
US	United States
VIF	Variance Inflation Factor

## 1 Introduction

In the last decades, ethics of corporate behavior has become a prominent topic in the business world. The idea is that corporations need to act in a moral manner. In the literature, different meanings have been given to this concept. Two opposing theories have been developed: the Shareholder Theory and the Stakeholder Theory. The first one has been created by Milton Friedman and is also called 'The Friedman Doctrine'. According to Friedman (1970), profit maximization is the only responsibility a corporation has. In 1984, R. Edward Freeman came with a counter thought. In his opinion, many different groups of people are important for the success of a corporation (Freeman, 1984/2010, p. 24). Because of that, a firm should focus on satisfying the needs of all its stakeholders (Kujala et al., 2019). As this master's thesis is written from this perspective, the assumption is made that corporations behave in an ethical way by not only taking into account their financials, but also society and the environment.

Firstly, firms should take responsibility for the impact of their business on people and the planet. To determine the degree to which a corporation does that, one can look at its Corporate Social Responsibility (CSR) performance.<sup>1</sup> In the past, firms operating within the European Union (EU) could choose whether they wanted to share CSR related data or not: CSR reporting was voluntary. This changed with the entry into force of the Non-Financial Reporting Directive (NFRD) in the fiscal year 2017 (Fiechter et al., 2022). As a consequence, publishing CSR information became mandatory for approximately 11,700 EU firms from 2018 onwards (KPMG, 2023). In the near future, this amount is going to increase substantially. That is because the NFRD will soon be replaced by the Corporate Sustainability Reporting Directive (CSRD) (Directive 2022/2464). The CSRD will be implemented step-by-step and group-by-group. The corporations that are up first are those in scope of the NFRD. These firms will have to apply the new rules from the financial year 2024. Eventually, about 49,000 EU corporations will be subject to the standards introduced by the CSRD: the European Sustainability Reporting Standards (ESRS) (KPMG, 2023).

Second, firms are expected to pay their fair share of taxes. However, corporate tax evasion and corporate tax avoidance are an everyday occurrence. As the latter is totally legal, laws influence the extent to which a firm is able to engage in it. With respect to this, especially multinational corporations (MNCs) have a lot of opportunities to make use of gaps and mismatches in tax legislation. They can, for example, shift their profits to another nation. In order to stop corporate tax avoidance from happening, the Organization for Economic Cooperation and Development (OECD) presented the Base Erosion and Profit Shifting (BEPS) Action Plan in July 2013 (OECD, 2013). Aforementioned project consists of 15 action points in total. As of the 1<sup>st</sup> day of January 2016 (= implementation date) (Joshi, 2020), item 13 forces subjected EU countries to adopt

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<sup>1</sup> The exact meaning of this variable is given in subparagraph 2.2.1 while the way of measuring and determining it is included in subparagraph 3.2.1.

Country-by-Country (CbC) reporting, which makes it a central and practical element of this master's thesis.

In my research, I look into the effectiveness of both mandatory CSR and CbC reporting in preventing unethical corporate behavior (i.e., having a bad CSR performance and engaging in corporate tax avoidance) by EU firms.

### **1.1 Research Question and Sub-Questions**

As stated above, this study focuses on two different topics, namely CSR and corporate tax avoidance. I have shown that there are a few legislative developments in these areas. Whereas the NFRD and the CSRD must improve EU corporations' CSR engagement, the goal of CbC reporting is the reduction of corporate tax avoidance. Since the CSRD just entered into force a couple of months ago, its impact cannot be determined yet. For that reason, my master's thesis does not take into account the new reporting requirement any further. Hence, it only examines the effectiveness of the NFRD and BEPS Action 13. This through answering the following research question:

How effective is existing legislation in preventing unethical corporate behavior (i.e., having a bad CSR performance and engaging in corporate tax avoidance) by EU firms?

I have divided the main question into several sub-questions. In the first, I investigate whether the introduction of mandatory CSR reporting has bettered the CSR performance of EU firms.

How effective is the NFRD in improving EU firms' CSR performance?

The second one concerns the effect of CbC reporting on the extent to which EU corporations engage in tax avoidance.

How effective is BEPS Action 13 in reducing the degree to which EU firms avoid taxes?

The last sub-question is about the relationship between CSR and corporate tax avoidance. Exploring this connection is important because a link between the two may cause legislation in one area to have an (indirect) effect in the other.

How are CSR and corporate tax avoidance (inter)related?

### **1.2 Research Design**

From the formulation of the research question and the different sub-questions can be derived that my study revolves around EU firms. Particularly concerning CSR, this is a logical choice. First of all, the EU is much further in compulsorily regulating CSR reporting than, for instance, the United States (US) (Christensen et al., 2021). Moreover, the NFRD is a very widespread directive: many EU corporations fall within its scope. The availability of more than enough data makes it possible to accurately measure the effectiveness of mandatory CSR reporting. Therefore, a lot of useful information regarding the topic can be generated by concentrating on an EU setting. I am

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of the opinion that this conclusion also holds with respect to corporate tax avoidance. Indeed, almost all EU countries are members of the OECD (EU, n.d.; OECD, 2021).<sup>2</sup> Accordingly, for evaluating the impact of CbC reporting, it should be sufficient to only include EU firms in the sample. Besides, when assessing the relationship between two subjects, focusing on the same group of corporations is a straightforward thing to do. This for the reason that it makes the isolation of the researched effect easier.

In my master's thesis, a quantitative research design is used. As data about CSR and corporate tax avoidance are numerical in nature, choosing a methodology of that kind is in fact the only option (Bhandari, 2023). Sub-questions 1 and 2 are about estimating the real effects of specific regulations. For answering these types of questions, researchers often apply the difference-in-differences method (Babu et al., 2017) (e.g., Joshi, 2020; Fiechter et al., 2022). Nevertheless, I have decided to go for something else instead, namely a graphical display of the data together with a (static) time series regression. This because such an analysis makes it possible to examine a particular variable of a particular group of firms over time. That is why I believe it to be a suitable technique for the testing of hypotheses 1 and 2. Although sub-question 3 does not concern the impact of a certain policy, a similar approach can be utilized for checking the related assumption: the data are first presented in a graphical way, after which a regression analysis is conducted. In many similar studies, especially the last method turned out to be successful (e.g., Hoi et al., 2013; Lanis & Richardson, 2015; Davis et al., 2016; Zeng, 2019).

In chapter 3, the research design is further and more thoroughly explained.

## 1.3 Contributions

### 1.3.1 Scientific Contributions

The scientific relevance of my study is threefold. First, this master's thesis contributes to the existing literature on the NFRD and its impact. It answers the call of Fiechter et al. (2022) and Cuomo et al. (2022) to do additional research in this field. In these papers, the authors have provided early evidence on the real effects of a widespread CSR reporting mandate. Their findings prove that corporations within the scope of the NFRD have increased both their CSR transparency and activities (performance). Nonetheless, an important shortcoming of foregoing analyses is that only one reporting year after the implementation of the NFRD is involved. The long-run effectiveness of this directive is thus not known yet. One of the goals of my master's thesis is to fill this gap in the literature.

Second, this research builds on the examinations done by Joshi (2020) and Tuinsma et al. (2023). They discovered that the introduction of CbC reporting resulted in EU MNCs engaging less

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<sup>2</sup> The following EU member states are not part of the OECD: Bulgaria, Croatia, Cyprus, Malta, and Romania (EU, n.d.; OECD, 2021).

in tax avoidance. However, in their studies they did only include data from the years 2010 to 2018. Because the focus was on a short period of time, the conclusions may not hold in the long run. Joshi (2020) even acknowledged this limitation herself. Since we are now 6 years further, the post-implementation period has grown to 9 years. I believe that there are currently enough data available for my analysis to have long-term implications in the domain referred to.

Lastly, this master's thesis is about the relationship between CSR and corporate tax avoidance. In the literature, the evidence regarding this connection is inconsistent. Some academic writers are of the opinion that the two are positively linked (e.g., Zeng, 2019) while others find proof for a negative relationship (e.g., Lanis & Richardson, 2015). I intent to provide clarity by determining which of the different views is correct in an EU setting. Doing this is relevant because thus far, research about the subject is scarce.

### 1.3.2 Societal Contributions

My study is relevant in practice too. This because society wants corporations to behave in an ethical way. In this context, it is important to know whether that can be achieved by mandatory CSR and CbC reporting. If the answer is yes, my research informs people on how to make sure that firms take their societal and environmental responsibilities and also pay their fair share of taxes. If the answer is no, policy makers are at least aware of the fact that they have to come up with other directives and/or requirements.

## 1.4 **Structure**

This master's thesis proceeds as follows. Chapter 2 contains both the background and a literature review regarding the meaning of ethical corporate behavior, the real effects of mandatory CSR reporting in the EU as well as BEPS Action 13, and the relationship between CSR and corporate tax avoidance. In that section, I also develop the hypotheses. Chapter 3 revolves around the methodology used to conduct the analyses. After that, in chapter 4, I present the results of my research and in chapter 5, the last part of this study is included, namely the conclusion and discussion.

## 2 Background, Literature Review and Hypotheses Development

### 2.1 Ethics of Corporate Behavior

In order to know what ethics of corporate behavior exactly entails, one must look at the purpose of organizations. As mentioned earlier, the Shareholder Theory and the Stakeholder Theory look at this concept in a different way.

#### 2.1.1 Shareholder Theory

Friedman (1970) thinks that a manager is an employee of the owners of the corporation and that this person therefore has to act in the best interests of these people. Moreover, he is of the opinion that stockholders own a firm and that their needs are in most cases satisfied by profit maximization. For this reason, Friedman supposes that corporations do not have any social responsibilities. After all, spending money on public desires leads to a profit loss and, as a consequence, to a lower shareholder return (Friedman, 1970). According to Friedman (1970), the only rules managers must take into account are those stemming from laws and ethical custom. These can thus limit the degree to which stockholders' ends can be achieved (Ferrero et al., 2014). Despite this knowing, the Friedman Doctrine is still seen by many as a theory in which morals are not considered important (e.g., Grant, 1991; McAleer, 2003; Robé, 2012).

#### 2.1.2 Stakeholder Theory

R. Edward Freeman is the founder of the Stakeholder Theory (Stieb, 2009). He first mentioned the corresponding perspective in his famous book 'Strategic Management: A Stakeholder Approach' (Freeman, 1984/2010, p. 27). The idea is that managers should concentrate on fulfilling the wishes of all stakeholders (Stieb, 2009). It is thought that the most important ones are workers, suppliers, customers, shareholders, and communities (Freeman et al., 2010, p. 9). Because the surrounding society is included, the Stakeholder Theory is in some way connected to CSR (as this concept relates to the society as a whole) (Freeman & Dmytriyev, 2017). Consequently, firms are believed to have certain social responsibilities (Freeman & Dmytriyev, 2017). Therefore, Freeman's view is often perceived morally right (Hühn, 2023).

#### 2.1.3 Considerations

Especially the Shareholder Theory has gotten a lot of critique over time (e.g., Robé, 2012; Carson, 2018; Clarke, 2020). Clarke (2020) even presumes that managers' focus on profit maximization has led to fatal mistakes in corporate decision-making. Thence, he makes the assumption that the Friedman Doctrine is outdated. To some extent, this stance may be true. The present society is indeed totally different than the society of all those years ago (Schwartz & Saiia,

2012). For example, nowadays, a lot of people find it important that firms do not behave in a self-centred manner. Increasing profits can thus not be the only relevant organizational purpose anymore (Schwartz & Saiia, 2012). However, following researchers like Cosans (2009) and Hühn (2023), it is incorrect to say that the Shareholder Theory does not include ethics at all. A specific quote withdrawn from a letter written by Friedman himself is important in this context: *“I agree that corporate executives might have duties to the general public which sometimes outweigh their duties to the shareholders.”* (M. Friedman, personal communication, October 20, 1992; Carson, 2018, p. 233). From this comment can be derived that CSR does play a role within the Friedman Doctrine. Nonetheless, there is discussion in the literature regarding the extent to which this is the case. As an illustration, Rodin (2005) claims that the bar is set very low while Cosans (2009) states the exact opposite. In accordance with Schwartz and Saiia (2012), the truth probably lies somewhere in the middle of these two extremes.

It is clear that corporations today have particular social and environmental liabilities (Clarke, 2020). This more or less asks for a stakeholder approach to business, which in turn gives rise to a broad CSR position (Schwartz & Saiia, 2012).

## 2.2 CSR

The person who came up with corporate social responsibility was the American economist Howard Bowen (Acquier et al., 2011). In his book ‘Social Responsibilities of the Businessman’ he gave the underlying definition of CSR.

*The term social responsibilities of businessmen (...) refers to the obligations of businessmen to pursue those policies, to make those choices, or to follow those lines of action which are desirable in terms of the objectives and values of our society.* (Bowen, 1953/2013, p. 6)

Throughout the years, researchers have described the subject in various ways. This has led to inconsistency about its meaning (Sarkar & Searcy, 2016). By looking at 110 different descriptions, Sarkar and Searcy (2016) have determined the central elements of CSR, namely: economic, social, ethical, stakeholders, voluntary, and sustainability. Their definition reads as follows.

*CSR implies that firms must foremost assume their core economic responsibility and voluntarily go beyond legal minimums so that they are ethical in all of their activities and that they take into account the impact of their actions on stakeholders in society, while simultaneously contributing to global sustainability.* (Sarkar & Searcy, 2016, p. 1433)

Since CSR reporting is now mandatory in the EU, the part that relates to the dimension *voluntary* has to be dropped from the citation above. Moreover, it seems that the element *economic* has

become less important, if not irrelevant. Not without reason, the economic pillar was taken out of the database Thomson Reuters Asset4 in 2017 (De Villiers et al., 2022). Thus, an accurate description of CSR remains when focusing on the four key words (being: social, ethical, stakeholders, and sustainability) that are left.

### 2.2.1 CSR Performance

In line with Cuomo et al. (2022), I define CSR performance as a combination of a firm's social and environmental score. Therefore, this variable resembles the degree to which a corporation keeps in mind its impact on people and the planet. Logically speaking, firms with a high CSR performance are doing good for society.

### 2.2.2 NFRD

The NFRD was passed in 2014 (Directive 2014/95). From 2018 onwards, it requires large listed EU corporations to annually publish a sustainability report (Fiechter et al., 2022). Firms that fall within its scope are public-interest entities that have more than 500 employees (on individual and/or group basis) (Directive 2014/95). As mentioned in the introduction, approximately 11,700 EU corporations meet these conditions. Hence, these firms must provide information about their CSR activities. The idea behind this obligation is roughly twofold. First, the EU wants to increase non-financial transparency (Directive 2014/95). Second, it aims to create a sustainable global economy by improving total CSR performance (Fiechter et al., 2022).

### 2.2.3 Real Effects of Mandatory CSR Reporting in the EU

Plenty of academic papers revolve around the real effects of the NFRD. The fundamental ones are included down here.

#### *Single and Double Country Settings*

Much research in this area is performed in single and double country settings. For instance, it is proven that the introduction of the NFRD has made the sustainability reports of listed Italian and German firms qualitatively better (Mion & Loza Adai, 2019). Besides, in a Polish study, evidence was found for a positive relation between the implementation of the NFRD and non-financial disclosure quantity (Matuszak & Róžańska, 2021). On top of that, the published sustainability information over the year 2017 turned out to be more homogeneous than before (Matuszak & Róžańska, 2021). By means of a survey, Tamm and Gurvitš-Suits (2023) have confirmed this finding. They namely discovered that the non-financial disclosures of Estonian corporations have become more relevant, better comparable, and more consistent throughout the years.

Because my research is about the EU as a whole, I will not elaborate further on the country specific effects of the NFRD. After all, these may not be generalizable.

### *EU setting*

As far as my information goes, only a few studies consider all EU countries when evaluating the impact of the NFRD. First, according to Cuomo et al. (2022), CSR transparency and EU firms' CSR performance were positively influenced by this directive during the years 2015-2018. In their paper, Fiechter et al. (2022) discovered the same. They also found that corporations already started to increase their CSR activities two years before the actual entry into force. Furthermore, it is proven that the passing as well as the implementation of the NFRD have decreased the extent to which EU firms engage in CSR decoupling (Aboud et al., 2023). This means that the NFRD has made the non-financial disclosures of EU corporations more credible. Ottenstein et al. (2022) have concluded something similar. In their research, they claim that there is a positive relationship between aforementioned directive and both the quality and quantity of sustainability reporting.

From the foregoing can be deduced that the connection between the NFRD and EU firms' CSR performance has been examined before. However, as stated in subparagraph 1.3.1, the studies of Cuomo et al. (2022) and Fiechter et al. (2022) do not go further than the reporting year 2018. The long-term relation between mandatory CSR reporting in the EU and the indicated variable is thus not identified yet.

## **2.3 Corporate Tax Avoidance**

A uniform definition of corporate tax avoidance does not exist (Duhoon & Singh, 2023). Though, it is clear that it is a legal manner to lower the tax burden of a firm (Slemrod & Gillitzer, 2013). Still, tax avoidance is by many seen as an example of unethical and socially irresponsible corporate behavior (Hoi et al., 2013; Lanis & Richardson, 2015). This because it reduces the amount of money that can be spent on public needs (Dowling, 2014). Based on CSR and the idea behind the law, society expects corporations to pay their fair share of taxes (Dowling, 2014).

### **2.3.1 BEPS Action 13**

Because a lot of firms operate in multiple countries, international rules are needed in order to solve the problem of tax avoidance (OECD, n.d.-a). In 2013, a step in the right direction was taken by the OECD and the Group of 20 (G20) (OECD, 2013). In the context of the OECD/G20 BEPS Project, these parties have established 15 action points (OECD, n.d.-b). BEPS Action 13 requires multinational enterprises (MNEs) with revenues of €750 million or more to annually publish a CbC report to the tax administrations in the countries wherein they do business (OECD, n.d.-c). This

item has been implemented in all EU countries on the 1<sup>st</sup> of January 2016 (Joshi, 2020) with the goal of gathering useful information about corporate taxation (OECD, n.d.-c).

### 2.3.2 Effectiveness of CbC Reporting

As far as I know, not much research is performed regarding CbC reporting and its effectiveness in reducing corporate tax avoidance. The few (working) papers that deal with this subject are mentioned below.

#### *Single Country Settings*

Canada and China are both members of the G20 (OECD, n.d.-d). Therefore, BEPS Action 13 also applies to them. In his study, Maaloul (2023) did not find proof for a connection between CbC reporting and the degree to which Canadian MNCs engage in tax avoidance. On the contrary, Chinese MNCs did seem to react to the new requirements by avoiding less taxes: their ETRs grew significantly in the four years after the implementation of CbC reporting (Yang, 2023).

#### *EU and Other Wide-Spread Settings*

Evidence also differs a bit when looking at a broader setting. Hugger (2019) observed a small increase in ETRs of MNEs that mandatorily had to publish a CbC report. However, he also found that the growth rate of tax payments did not go up during this period. Because of that, Hugger is not that convinced about CbC reporting having an actual effect on corporate tax avoidance. In a later study, Tuinsma et al. (2023) have established this relation with more certainty. They indeed discovered that the ETRs of EU MNEs were a lot bigger after the implementation of CbC reporting than before. This finding is in accordance with the results of Joshi's (2020) analysis. After all, in her research, she also identified a serious increase in ETRs during the years 2016-2018.

Because Tuinsma et al. (2023) as well as Joshi (2020) have taken into account a short post-implementation period, they have only determined the early effectiveness of CbC reporting. In the long run, up until now, its impact is not figured out.

## **2.4 The Relationship between CSR and Corporate Tax Avoidance**

There is an enormous amount of literature concerning the connection between CSR and corporate tax avoidance. In their paper, Jemiolo and Farnsel (2023) have gathered and reviewed many of these researches. They conclude that the relation between the two variables is complicated. Proof is collected for both a substitutive and a complementary relationship (Jemiolo & Farnsel, 2023). Col and Patel (2019), Zeng (2019), and Davis et al. (2016) have for instance shown that CSR and corporate tax avoidance are positively related. Meanwhile, among others, Lanis and Richardson (2015) and Hoi et al. (2013) detected a negative connection instead. In short, the evidence found in the literature is seen as inconsistent. As said by Jemiolo and Farnsel (2023),

the incompatible results may be attributed to the use of various samples. This because CSR and tax avoidance are differently viewed in each and every country (Jemiolo & Farnsel, 2023). To the best of my knowledge, the relationship between the two subjects in an EU setting is not yet identified in the literature.

## 2.5 Hypotheses Development

It is already established that mandatory CSR reporting makes the CSR activities of many corporations more visible and better comparable (subparagraph 2.2.3). Because no corporation wants to report bad scores, I presume that the NFRD positively affects EU firms' CSR performance. This way of thinking is in line with the earlier studies of Cuomo et al. (2022) and Fiechter et al. (2022). Hence, the first part of my master's thesis builds on these researches.

H1 = The NFRD has a positive effect on EU firms' CSR performance.

Joshi (2020) and Tuinsma et al. (2023) have proven that CbC reporting caused EU firms to avoid less taxes in the short run. Moreover, the conclusion is made that private CbC reporting can deter corporate tax avoidance (Joshi, 2020). EU corporations probably get discouraged from engaging in this kind of behavior due to its exposure. For these reasons, I suspect that BEPS Action 13 is also effective in reducing corporate tax avoidance in the long term.

H2 = CbC reporting has a negative effect on corporate tax avoidance.

As this research focuses on the subjects CSR performance and corporate tax avoidance, discovering the link between both can be very interesting. After all, if the two are (inter)related, it is possible for legislation in one domain to have an (indirect) impact in the other. In a couple of Chinese studies, this thought is already examined. Ding et al. (2022) found out that mandatory CSR reporting negatively affects corporate tax avoidance, whereas, on the contrary, Jiang et al. (2022) observed a positive connection. However, the common tenet seems to be that the relationship between CSR performance and corporate tax avoidance is negative of nature. In these regards, moral leadership is indeed believed to be an important concept (Wahab et al., 2022). Therefore, I argue that a firm behaving socially responsible in one area, does the same in the other (= stakeholder oriented) (Jemiolo & Farnsel, 2023).

H3 = There is a negative relationship between CSR performance and corporate tax avoidance.

## 3 Methodology

### 3.1 Sample and Data Collection

For my master's thesis, I have collected data on multiple variables. Every time, the sample definition was the same, namely EU firms throughout the period 2013-2022. This input has led to a group of 1,425 corporations from the following countries: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Germany, Greece, Finland, France, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.<sup>3</sup> I have picked 2013 as starting point because both the passing and the actual entry into force of the NFRD happened after that year. Hence, in 2013, the NFRD could not have had any effect on CSR performance. Moreover, it is also a good year to begin with in regard to BEPS Action 13. As mentioned earlier, CbC reporting was indeed implemented in the whole EU on the first day of January 2016. There is thus a pre-implementation phase of more than one year concerning each part of my research, which is quite common in the literature (e.g., Joshi, 2020; Aboud et al., 2023; Tuinsma et al., 2023).

Information on CSR performance comes from London Stock Exchange Group (LSEG) Workspace. Via this software tool I have gotten access to Thomson Reuters Asset4.<sup>4</sup> The database referred to is very popular among writers of academic papers aiming to measure the CSR performance of a firm (e.g., Sidhoum & Serra, 2017; Khoo et al., 2022; Benaguid et al., 2023). That is because it records around 569 Environmental, Social, and Governance (ESG) related indicators (De Villiers et al., 2022). This makes it a suitable database for answering research questions about CSR.

LSEG Workspace also provides time series data on corporate taxation. Therefore, I have decided to extract the needed information respecting corporate tax avoidance from that platform as well.

In order to strengthen the validity of my study, I have added a few control variables to my analyses, namely size, return on assets (ROA), capital intensity, and leverage. The necessary data on these variables are again derived from LSEG Workspace.

### 3.2 Measurement of Variables

#### 3.2.1 CSR Performance

As stated in the previous paragraph, I have gathered the required information on CSR performance by means of Thomson Reuters Asset4. All the therein included data points are

<sup>3</sup> Although Bulgaria, Cyprus, and Romania are not part of the OECD (OECD, 2021), I have still made the decision to include them in the sample with respect to all hypotheses. This for the reason that my study focuses on the EU as a whole and not only on those countries that are subjected to the BEPS Actions.

<sup>4</sup> Because Thomson Reuters Asset4 has been taken over several times in the past (first by Refinitiv and then by LSEG), the name of the database is actually outdated (De Villiers et al., 2022). However, it is still often used in academic research (De Villiers et al., 2022).

divided into one of the four pillars, being: environmental, social, corporate governance, and ESG controversy (LSEG, n.d.). The ESG Score is based on the first three (De Villiers et al., 2022) while the CSR Score just depends on the first two (Lys et al., 2015; Fiechter et al., 2022). Hence, for calculating a firm's CSR performance, researchers generally take into account only the environmental and social ratings (e.g., Khoo et al., 2022). In my master's thesis, I have decided to do the same. This because of the way I define CSR performance (subparagraph 2.2.1).

With regard to the environment pillar scores of corporations, I have noticed that a lot of the values are equal to 0. Although this number is extremely low, I assume that the involved observations are correctly estimated. After all, if there was too little information available for an accurate computation, the cells would have been blank instead.

### 3.2.2 Corporate Tax Avoidance

Writers of academic papers often measure corporate tax avoidance by assessing either effective tax rates (ETRs) or book-tax differences (Visser et al., 2022). In this study, I have used the first method in such a manner that the ETRs are calculated by dividing income taxes by pretax income. The degree to which corporations avoid taxes can be determined by looking at the outcomes: a corporation with a high ETR does not engage much in tax avoidance (Joshi, 2020).

What is remarkable is that some of the computed ETRs are very high, namely (far) above the 100%. As it is possible for firms to have such a yearly value, I have chosen to not drop these outliers, but to keep them in the dataset.

### 3.2.3 Control Variables

Firstly, since it is believed that the size of a firm is associated to one's engagement in both CSR and tax avoidance (Zimmerman, 1983; Christmann & Taylor, 2006), I have added SIZE as a control variable. In accordance with much prior research (e.g., Lanis & Richardson, 2015; Joshi, 2020; Fiechter et al., 2022; Visser et al., 2022), this item is equal to the natural logarithm of total assets.

The second control variable I have included in the analyses is ROA, which is – by LSEG Workspace – measured through the formula '(net income + ((interest expense on debt-interest capitalized) \* (1 - tax rate))) / average total assets \* 100'. I have done this because it is proven that the financial performance of a firm is taken into account when making decisions regarding CSR (Clarkson et al., 2011). Besides that, ROA is also seen as a determinant of corporate tax avoidance (e.g., Lanis & Richardson, 2015; Joshi, 2020; Tuinsma et al., 2023).

Third, in prior studies, a relation is found between capital intensity on the one hand, and CSR related activities as well as tax strategies on the other (e.g., Lanis & Richardson, 2015; Marquis et al., 2016; Tashman et al., 2019; Ortas & Gallego-Álvarez, 2020). For that reason, I have inserted the control variable CAPITAL\_INTENSITY in my regression models. Following researchers like

Marquis et al. (2016) and Visser et al. (2022), this unit is defined as the ratio of net property, plant, and equipment to total assets.

Lastly, as many writers of academic papers suppose that leverage has an effect on either CSR performance or aggressive tax practices (e.g., Lanis & Richardson, 2015; Joshi, 2020; Ortas & Gallego-Álvarez, 2020; Fiechter et al., 2022; Visser et al., 2022), I have controlled for these connections by means of LEVERAGE. The calculation of this factor builds on the examination done by Visser et al. (2022) and reads as follows: the ratio of total debt over total assets. Concerning the indicated variable, it stands out that many corporations have reported an output of 0. In most cases, this is caused by the total debt being that amount, which number I presume to be true. Otherwise, the values would not have been 0, but rather missing.

### 3.3 Graphical Display of the Data

Like stated in paragraph 1.2, presenting the data in a graphical way is the initial thing I have done for all hypotheses. Respecting the first two, the mean and median value of the dependent variable(s) are plotted over the years. These graphs demonstrate whether the environment pillar scores, social pillar scores and ETRs went up or down during a certain period. Hereby, one can get an idea of the effectiveness of the NFRD and CbC reporting. In regard to hypothesis 3, two different lines are put into one figure, namely: the yearly value of the environment or social pillar scores together with the yearly value of the ETRs. As the generated plots show the movement of both variables throughout the research period, certain conclusions can be drawn on the basis thereof. For instance, if they (roughly) follow the same course, it can be assumed that they are positively linked to each other.

### 3.4 Regression Models

#### 3.4.1 Hypothesis 1

Partially in line with Cuomo et al. (2022), I have used the following regression models in order to test hypothesis 1.

$$\text{Environment\_Pillar\_Score}_t = \beta_0 + \beta_1 * \text{Post\_NFRD}_t + \beta_2 * \text{SIZE}_t + \beta_3 * \text{ROA}_t + \beta_4 * \text{CAPITAL\_INTENSITY}_t + \beta_5 * \text{LEVERAGE}_t + \epsilon_t$$

$$\text{Social\_Pillar\_Score}_t = \beta_0 + \beta_1 * \text{Post\_NFRD}_t + \beta_2 * \text{SIZE}_t + \beta_3 * \text{ROA}_t + \beta_4 * \text{CAPITAL\_INTENSITY}_t + \beta_5 * \text{LEVERAGE}_t + \epsilon_t$$

The distinction that is made between the environmental and social performance of corporations was already addressed in subparagraph 3.2.1. The dependent variables Environment\_Pillar\_Score and Social\_Pillar\_Score respectively represent foregoing items. These scores are granted by LSEG

Workspace and expressed in numbers ranging from 0 to 100 (LSEG, n.d.). On the right-hand side of the equations, I have inserted the element `Post_NFRD`. This binary variable is 0 for the years 2013 to 2016 and 1 for the years after. Also included are all control variables specified in subparagraph 3.2.3, being `SIZE`, `ROA`, `CAPITAL_INTENSITY` and `LEVERAGE`. The last component that both regression models entail ( $\epsilon_t$ ), stands for the error term.

### 3.4.2 Hypothesis 2

Hypothesis 2 is checked by means of the regression model stated below.

$$\text{ETR}_t = \beta_0 + \beta_1 * \text{Post\_CBCR}_t + \beta_2 * \text{SIZE}_t + \beta_3 * \text{ROA}_t + \beta_4 * \text{CAPITAL\_INTENSITY}_t + \beta_5 * \text{LEVERAGE}_t + \epsilon_t$$

(where: CBCR = Country-by-Country reporting)

Herein, the dependent variable ETR functions as a proxy for the degree to which corporations engage in tax avoidance. How to measure this item is written down in subparagraph 3.2.2. On the other side of the equation, the dummy `Post_CBCR` can be found. Its value is equal to 0 in the years 2013 to 2015 and equal to 1 in the remaining period. Moreover, the control variables `SIZE`, `ROA`, `CAPITAL_INTENSITY` and `LEVERAGE` as well as the error term have been added again.

### 3.4.3 Hypothesis 3

Since I have chosen to divide CSR performance into `Environment_Pillar_Score` and `Social_Pillar_Score` (subparagraph 3.4.1), the two underlying regression models are needed for testing hypothesis 3.

$$\text{ETR}_t = \beta_0 + \beta_1 * \text{Environment\_Pillar\_Score}_t + \beta_2 * \text{SIZE}_t + \beta_3 * \text{ROA}_t + \beta_4 * \text{CAPITAL\_INTENSITY}_t + \beta_5 * \text{LEVERAGE}_t + \epsilon_t$$

$$\text{ETR}_t = \beta_0 + \beta_1 * \text{Social\_Pillar\_Score}_t + \beta_2 * \text{SIZE}_t + \beta_3 * \text{ROA}_t + \beta_4 * \text{CAPITAL\_INTENSITY}_t + \beta_5 * \text{LEVERAGE}_t + \epsilon_t$$

In accordance with, for example, Lanis and Richardson (2015), Davis et al. (2016), and Zeng (2019), the aforementioned equations assess whether a corporation's CSR performance affects its engagement in tax avoidance (and thus not the other way around). Because each and every one of the included variables are described before, I refer back to the definitions given earlier in this chapter. On top of that, table A1 (appendix A) contains an overview of all explanations.

## 4 Results

### 4.1 Graphical Display of the Data

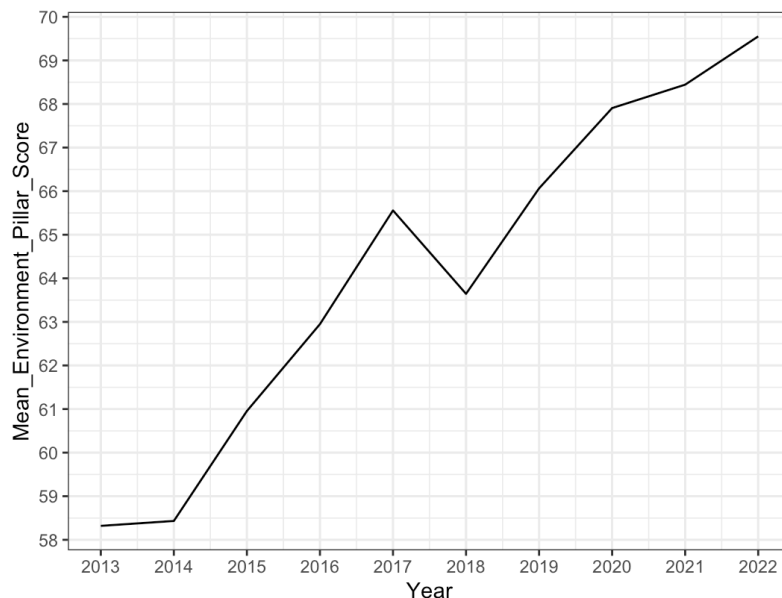
#### 4.1.1 Hypothesis 1

As brought up in paragraph 3.1, the original sample did consist of 1,425 corporations. However, not all of these firms have provided information regarding their environmental and social performance throughout the entire examination period (2013-2022). After removing the ones with missing values, only 417 organizations have remained for presenting hypothesis 1. Because CSR reporting just became mandatory in 2018, it is logical that this number is quite low.

#### *Environment Pillar Score*

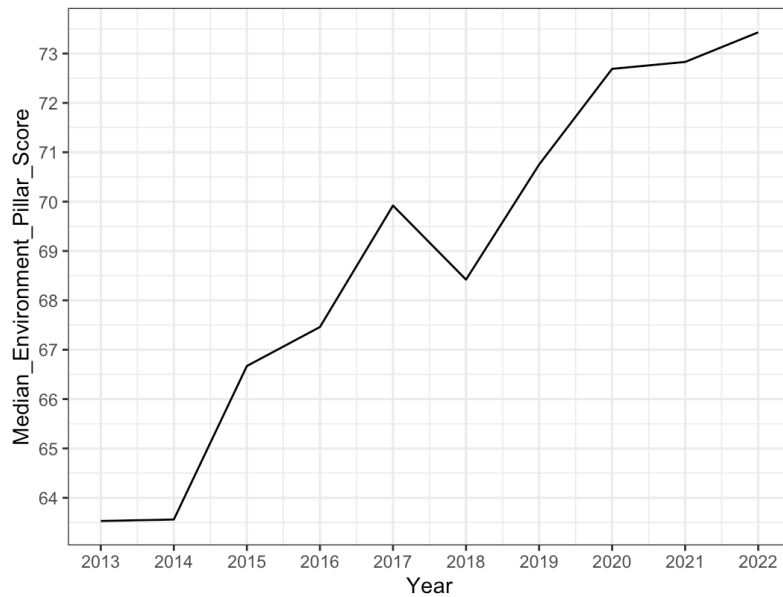
First, I have plotted the movement of the average environment pillar score over the years. The created graph is included in figure 1a.

**Figure 1a.** Graphical Display of Mean\_Environment\_Pillar\_Score and Year.



What can be seen, is that the environment pillar scores strongly increased from 2014 until 2017 and also from 2018 onwards. It is possible that this is a result of the passing and implementation of the NFRD. Although such a link cannot be established with certainty by solely looking at a graphical display of the data, it can at least give a good first impression.

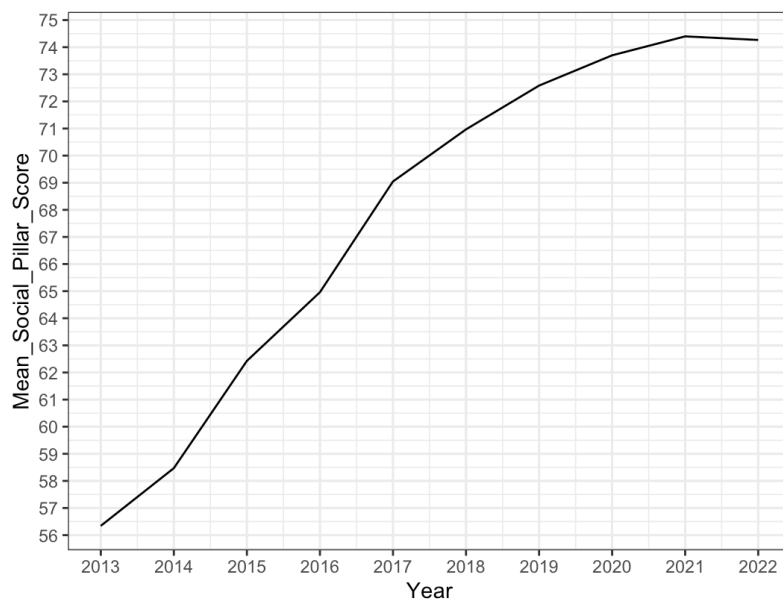
In view of the fact that the dataset contains several outliers (value = 0) (subparagraph 3.2.1), I have additionally generated a graph in which the median of the environment pillar scores is placed on the y-axis and the years on the x-axis (figure 1b).

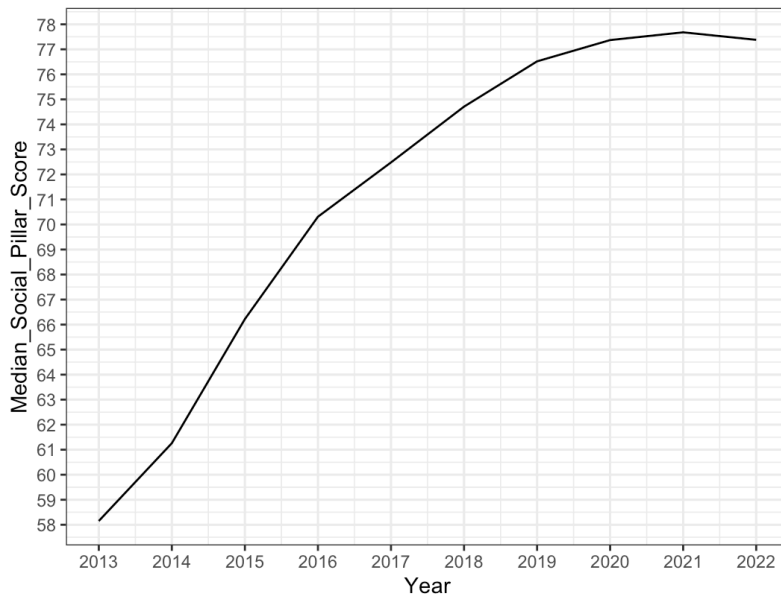
**Figure 1b.** Graphical Display of Median\_Environment\_Pillar\_Score and Year.

Foregoing line roughly follows the same course as the one captured in figure 1a. Nonetheless, the yearly values based on the median are way bigger than those based on the mean. This implies that the outliers weigh heavily: they reduce the average environment pillar scores by a whole lot.

### *Social Pillar Score*

Subsequently, I have created the same graphs for the social performance as for the environmental performance. Figures 1c and 1d present the outcomes.

**Figure 1c.** Graphical Display of Mean\_Social\_Pillar\_Score and Year.

**Figure 1d.** Graphical Display of Median\_Social\_Pillar\_Score and Year.

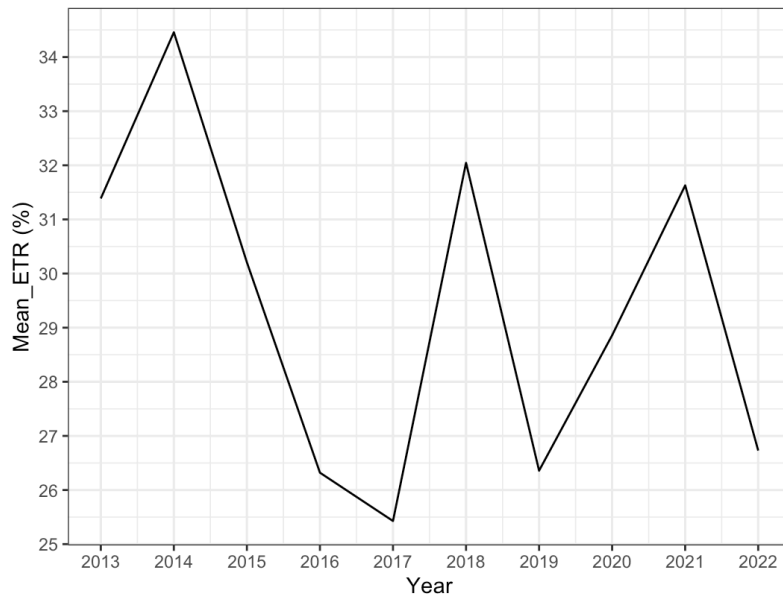
From these can be derived that the social pillar scores improved during the years 2013-2021. Since the line is the steepest at the beginning of the period, particularly the passing of the NFRD could have had a positive effect. Though, as the social performance also bettered between 2013 and 2014, this connection cannot be proven by only looking at the plots above.

Just like earlier, the yearly values depending on the median are higher than the ones depending on the mean. This implies that there are more corporations scoring above the mean than below, but that the firms with a relatively poor social performance pull down the average. When comparing the figures 1a and 1b with the figures 1c and 1d, it is clear that the mean and median numbers of the social pillar scores are closer together than those of the environment pillar scores. The reason for that is probably the following: not one firm received a 0 for its achievements in the category *social*.

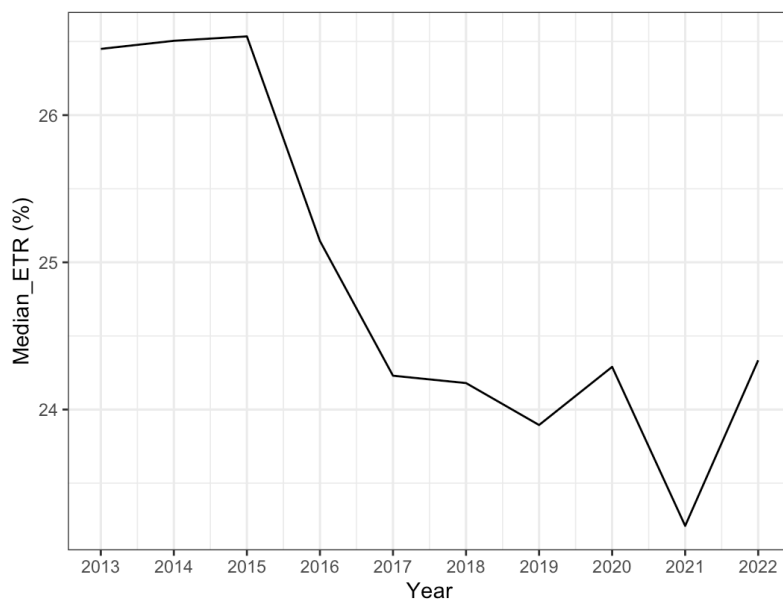
#### 4.1.2 Hypothesis 2

To illustrate the tax aggressiveness of EU firms throughout the years, the initial group of corporations needed to be diminished again. Respecting the variable ETR, 917 organizations had to be deleted from the sample because of missing values. Consequently, the information in this subparagraph is founded on the data of 508 firms in total.

Figure 2a shows the average ETRs for the ten different years that are studied in this master's thesis. It stands out that these mean values do not follow a specific pattern: they fluctuate a lot during the research period.

**Figure 2a.** Graphical Display of Mean\_ETR and Year.

What can also be distracted from the graph above is that the overall ETRs were the highest in 2014. Since CbC reporting was only implemented two years later, BEPS Action 13 does not seem to have had an effect on the degree to which EU firms engage in tax avoidance. Hereby, it is important to remark that two corporations had an enormous ETR in 2014 (1,063.16% and 2,123.77% respectively). As it is possible that these numbers give a distorted picture of reality, plotting the median of the ETRs against the years may be more fitting. The indicated line is included in figure 2b.

**Figure 2b.** Graphical Display of Median\_ETR and Year.

Noticeable is that this graph bears little to no resemblance with the one presented in figure 2a. Nevertheless, neither of them provides any evidence for a negative relation between CbC reporting and corporate tax avoidance. From 2015 until 2019, the median of the ETRs was even in a downward spiral, which rather suggests a positive connection between the two.

Another thing worth mentioning is that the ten median ETRs do not differ that much. The lowest one is 23.21%, whereas the highest one is 26.535%. Therefore, the yearly values as of 2016 are potentially not that bad as they appear to be.

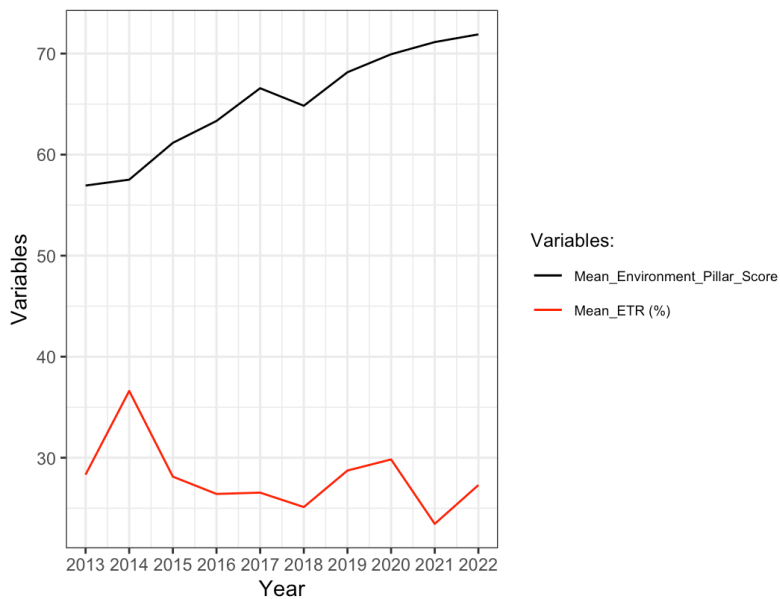
#### 4.1.3 Hypothesis 3

For the graphical display of hypothesis 3, it is required that all the included firms have an environment pillar score, a social pillar score and an ETR throughout the whole research period. Because of that, I have erased the vast majority of the original sample: only 188 organizations have remained for its presentation.

#### *Environment Pillar Score and ETR*

Figure 3a contains two variables, namely the mean of the environment pillar scores and the mean of the ETRs, which are plotted against the years.

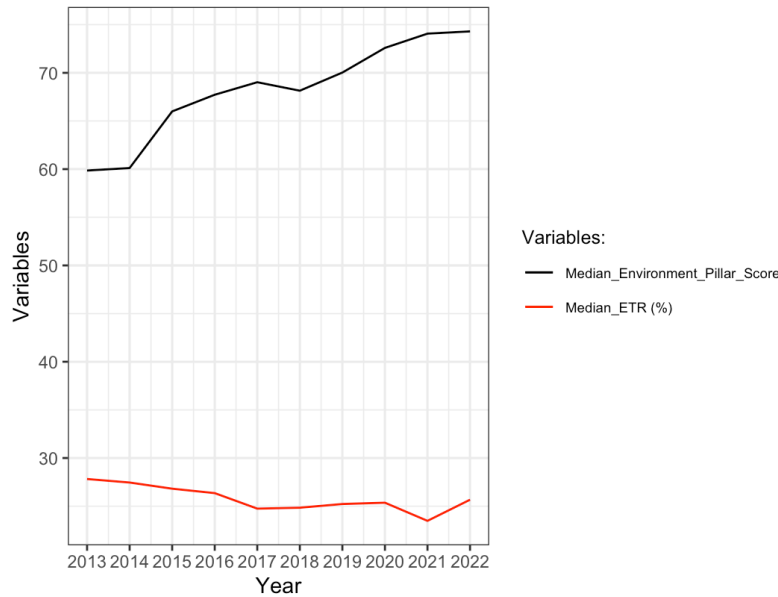
**Figure 3a.** Graphical Display of Mean\_Environment\_Pillar\_Score, Mean\_ETR, and Year.



Due to the fact that a negative connection between CSR performance and corporate tax avoidance is presumed, one would expect that the two lines move in the same direction. This is true in regard to 6 of the 9 yearly periods. However, since the trends of both variables look nothing alike, it is not possible to prove hypothesis 3 by means of the foregoing graph.

As illustrated in figure 3b, the median values of the environment pillar scores and the median values of the ETRs run even less in parallel to one another: just in 3 of the examined time frames, a positive relation between the two units is observed.

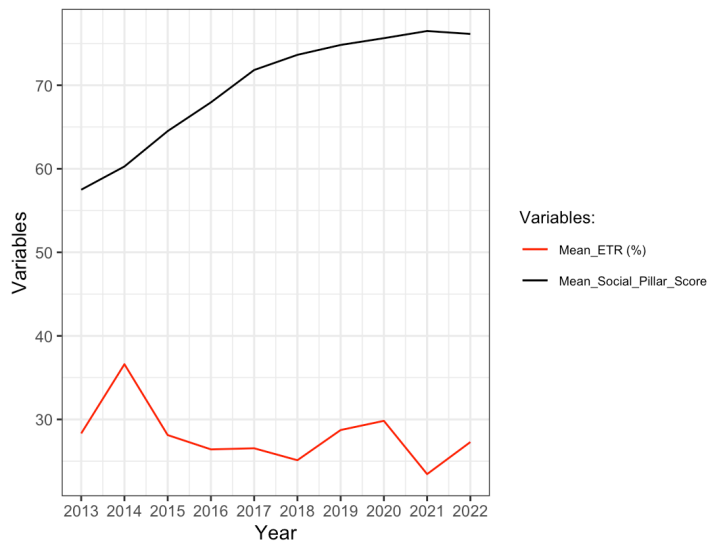
**Figure 3b.** Graphical Display of Median\_Environment\_Pillar\_Score, Median\_ETR, and Year.



*Social Pillar Score and ETR*

When comparing the average social pillar scores with the average ETRs, it can be seen that these items do not show a very similar pattern either. Solely in the periods 2013-2014, 2016-2017, and 2018-2020, both of the numbers increased simultaneously (figure 3c).

**Figure 3c.** Graphical Display of Mean\_Social\_Pillar\_Score, Mean\_ETR, and Year.



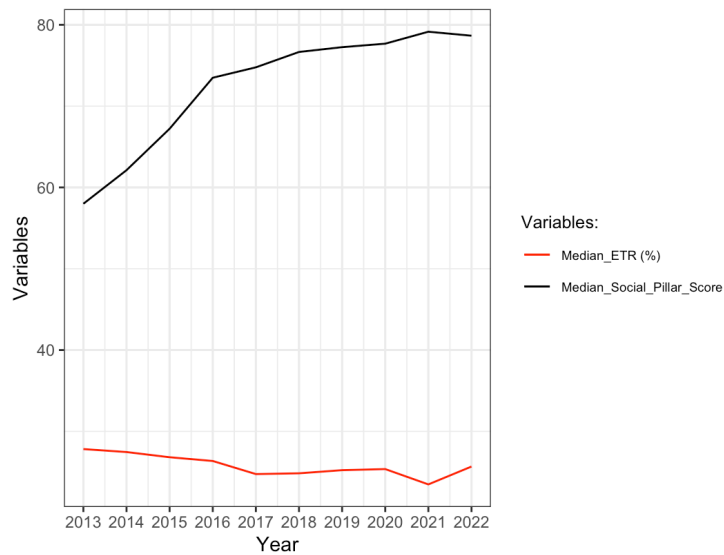
**Figure 3d.** Graphical Display of Median\_Social\_Pillar\_Score, Median\_ETR, and Year.

Figure 3d demonstrates that also the yearly values based on the median do not give rise to a positive link between the two variables. Indeed, from the graph above, one would rather distract a negative than a positive relationship. This because the lines follow a different course in 6 of the studied intervals.

## 4.2 Regression Analyses

### 4.2.1 Hypothesis 1

28 of the 417 corporations referred to in subparagraph 4.1.1 have reported missing values for at least one of the control variables. As these had to be deleted from the dataset, the first regression analysis builds on 389 observations per year.

I have divided the processed sample in a pre-directive and a post-directive period. The descriptive statistics (mean, median, standard deviation, minimum and maximum value) of the involved variables are written down in the underlying tables.

**Table 1a.** Descriptive Statistics H1 (Pre\_NFRD).

<u>Variables</u>	<b>Pre_NFRD (2013-2016)</b>				
	<u>Mean</u>	<u>Median</u>	<u>SD</u>	<u>Minimum</u>	<u>Maximum</u>
<b>Environment_Pillar_Score</b>	61.02655	65.6	25.03185	0	98.59
<b>Social_Pillar_Score</b>	61.72891	64.715	22.80596	2.16	98.2
<b>SIZE</b>	16.5980642	16.3787145	1.79109613	11.7087883	23.1480686

<b>ROA</b>	4.46187661	4.095	7.17935508	-90.85	69.32
<b>CAPITAL_INTENSITY</b>	26.6009158	20.6809617	24.7550694	.0134597	99.2512334
<b>LEVERAGE</b>	25.6743573	24.31	17.4913548	0	211.46

**Table 1b.** Descriptive Statistics H1 (Post\_NFRD).

<u>Variables</u>	<b>Post_NFRD (2017-2022)</b>				
	<u>Mean</u>	<u>Median</u>	<u>SD</u>	<u>Minimum</u>	<u>Maximum</u>
<b>Environment_Pillar_Score</b>	67.95032	72.015	20.62929	0	98.91
<b>Social_Pillar_Score</b>	73.69665	76.9	16.65773	4.62	98.14
<b>SIZE</b>	16.8269071	16.6739928	1.82814777	9.39207843	24.2106409
<b>ROA</b>	4.54491431	4.045	12.9001291	-417.73	128.42
<b>CAPITAL_INTENSITY</b>	26.8763973	21.4271908	24.2725014	.04414063	98.6500398
<b>LEVERAGE</b>	26.4281962	25.33	16.2452185	0	124.2

These confirm that the environmental and social performance of firms operating within the EU improved over time. After all, the mean and median value of both the Environment\_Pillar\_Score and Social\_Pillar\_Score were higher in the post-directive than in the pre-directive phase. Besides, tables 1a and 1b reveal that most of the standard deviations are quite high. This means that the data are widely distributed: on average, the different observations vary a lot from the mean.

Due to the high standard deviations and the presence of outliers (as indicated in the subparagraphs 3.2.1 and 4.1.1), the yearly values needed for the two regression analyses have been calculated on the basis of the median.

Since the control variables are included as independent variables in the separate models (subparagraph 3.4.1), I have conducted a Variance Inflation Factor (VIF) test to check for multicollinearity. The output can be found in table 1c.

**Table 1c.** VIF Test H1.

Post_NFRD	SIZE	ROA	CAPITAL_INTENSITY	LEVERAGE
3.432192	5.340290	2.632970	3.592906	7.905371

A VIF score higher than 5 is by many considered problematic (Studenmund, 2017, p. 252). This holds for a couple of the control variables, namely SIZE and LEVERAGE. Though, because the VIF score of Post\_NFRD (= the variable of interest) is acceptable and the VIF scores of SIZE and LEVERAGE are not that extreme (< 10), it is not really necessary to resolve the correlation issue. Hence, I can safely ignore the multicollinearity between the explanatory variables.

### Environment Pillar Score

Before the actual testing of hypothesis 1 in relation to the yearly environment pillar scores, I have performed two statistical tests. The first one is the Breusch-Pagan test, which examines whether there is heteroscedasticity or not. The p-value of 0.146 (table B1, appendix B) proves the homoscedasticity of the errors. The second one, the Breusch-Godfrey test, looks for autocorrelation in the regression model. An outcome of 0.2814 (table B2, appendix B) indicates that the null hypothesis cannot be rejected: serial correlation does not pose a problem.

According to the Gauss-Markov Theorem, the model designed in subparagraph 3.4.1 is best and thus kept in the original form.

**Table 1d.** Statistical Testing H1 in Relation to Environment\_Pillar\_Score.

```
Call:
lm(formula = Environment_Pillar_Score ~ Post_NFRD + SIZE + ROA +
    CAPITAL_INTENSITY + LEVERAGE, data = PD_Dataset_Regression_Analysis_H1_Yearly_Values_)

Residuals:
    1     2     3     4     5     6     7     8     9    10
-0.7965 -1.4877  0.8952  1.3890  1.0564 -1.0192 -0.5401  1.0009  0.3486 -0.8468

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  -178.75101   102.25042   -1.748   0.1553
Post_NFRD      2.01709     1.87804     1.074   0.3433
SIZE          15.37120     6.74656     2.278   0.0849 .
ROA           -0.56490     1.22351    -0.462   0.6683
CAPITAL_INTENSITY  0.04481     0.71065     0.063   0.9527
LEVERAGE     -0.23455     0.74160    -0.316   0.7676
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.57 on 4 degrees of freedom
Multiple R-squared:  0.9162,    Adjusted R-squared:  0.8115
F-statistic: 8.751 on 5 and 4 DF,  p-value: 0.02816
```

The table above shows that the NFRD has a positive, yet insignificant effect on the environmental performance of EU corporations.

### Social Pillar Score

The two aforementioned checks were also conducted in regard to the other part of hypothesis 1. Again, based on the Breusch-Pagan test, the conclusion can be made that no heteroscedasticity is present in the established regression. This on account of the p-value being 0.2054 (table B3, appendix B). Table B4 (appendix B) entails the output of a Breusch-Godfrey test. As the value of p is insignificant (= 0.2221), it is clear that the error terms are not correlated with one another.

Therefore, I have chosen to just run the primary function (subparagraph 3.4.1). Table 1e contains the results.

**Table 1e.** Statistical Testing H1 in Relation to Social\_Pillar\_Score.

```

Call:
lm(formula = Social_Pillar_Score ~ Post_NFRD + SIZE + ROA + CAPITAL_INTENSITY +
    LEVERAGE, data = PD_Dataset_Regression_Analysis_H1_Yearly_Values_)

Residuals:
    1     2     3     4     5     6     7     8     9    10
-2.0043 -1.8421  1.0341  2.8122  1.2923 -1.5505 -0.9094  1.8963  1.8291 -2.5578

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)    -472.656    191.971   -2.462   0.0695 .
Post_NFRD         3.619      3.526    1.026   0.3627
SIZE            35.576     12.666    2.809   0.0484 *
ROA             -3.181      2.297   -1.385   0.2383
CAPITAL_INTENSITY  1.455      1.334    1.091   0.3366
LEVERAGE       -2.561      1.392   -1.839   0.1397
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.948 on 4 degrees of freedom
Multiple R-squared:  0.9215,    Adjusted R-squared:  0.8234
F-statistic: 9.392 on 5 and 4 DF,  p-value: 0.02487

```

From this analysis can be deduced that the NFRD positively, but insignificantly influences the dependent variable Social\_Pillar\_Score.

#### 4.2.2 Hypothesis 2

473 EU firms have provided the information necessary for the testing of hypothesis 2. Because of that, all the others needed to be removed from the dataset. Subsequently, I have created the following summary statistics (split up in a pre-implementation and a post-implementation phase).

**Table 2a.** Descriptive Statistics H2 (Pre\_CBCR).

<u>Variables</u>	<u>Pre_CBCR (2013-2015)</u>				
	<u>Mean</u>	<u>Median</u>	<u>SD</u>	<u>Minimum</u>	<u>Maximum</u>
<b>ETR</b>	30.7833122	26.75	61.6769348	0	1681.5
<b>SIZE</b>	15.0179592	14.8426097	2.13215309	9.05052367	22.5654015

<b>ROA</b>	7.13360817	5.85	6.33793908	-1.79	63.89
<b>CAPITAL_INTENSITY</b>	21.5474715	14.9386985	22.0917785	.00947881	99.1114402
<b>LEVERAGE</b>	22.2469063	20.09	17.1599692	0	148.46

**Table 2b.** Descriptive Statistics H2 (Post\_CBCR).

<u>Variables</u>	<b>Post_CBCR (2016-2022)</b>				
	<u>Mean</u>	<u>Median</u>	<u>SD</u>	<u>Minimum</u>	<u>Maximum</u>
<b>ETR</b>	28.4576956	24.38	81.6868604	0	3649.2
<b>SIZE</b>	15.4778678	15.3681997	2.07038943	10.3286246	22.6163778
<b>ROA</b>	7.16350347	6	6.70455808	-3.61	128.42
<b>CAPITAL_INTENSITY</b>	22.6282016	16.6044902	21.7153206	.01100199	98.9347479
<b>ROA</b>	23.5693204	22.44	15.3161648	0	82.89

When looking at these tables, it is evident that the ETRs were smaller after the introduction of CbC reporting than before. This implies the existence of a positive (instead of a negative) relationship between BEPS Action 13 and corporate tax avoidance. Moreover, one can see that mainly the variable ETR comes with a high standard deviation. Due to the fact that the indicated dataset includes several outliers (subparagraphs 3.2.2 and 4.1.2), this finding is in line with my expectation. Accordingly, determining the yearly values by means of the median is a straightforward decision.

Since hypothesis 2 is checked with the help of a regression model that comprises multiple explanatory variables, a VIF test is an essential thing to do (table 2c).

**Table 2c.** VIF Test H2.

Post_CBCR	SIZE	ROA	CAPITAL_INTENSITY	LEVERAGE
3.101372	4.832508	2.454883	6.646392	8.601700

Now, the control variables CAPITAL\_INTENSITY and LEVERAGE score relatively high on multicollinearity (> 5, < 10). As this outcome is comparable to that of the previous VIF test, the choice is made to make no adaptations. Indeed, the correlation issue does not apply to the variable of interest (= Post\_CBCR).

In order to scan for heteroscedasticity, I have performed a Breusch-Pagan test, which turned out to be insignificant ( $p = 0.2806$ ) (table B5, appendix B). This brings that the error terms are homoscedastic. The Breusch-Godfrey test has also led to an, in my view, insignificant result ( $p >$

0.01). Considering that the p-value equals 0.09321 (table B6, appendix B), I assume that the function is not autocorrelated.

**Table 2d.** Statistical Testing H2.

```
Call:
lm(formula = ETR ~ Post_CBCR + SIZE + ROA + CAPITAL_INTENSITY +
    LEVERAGE, data = PD_Dataset_Regression_Analysis_H2_Yearly_Values_)

Residuals:
    1     2     3     4     5     6     7     8     9    10
-0.06165 -0.30569  0.36734  0.32626 -0.03496 -0.24731  0.21839 -0.11080 -0.51800  0.36643

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  41.77942   14.59963   2.862  0.0459 *
Post_CBCR    -1.65531    0.56467  -2.931  0.0428 *
SIZE         -0.58295    1.11627  -0.522  0.6291
ROA          -0.54725    0.44284  -1.236  0.2842
CAPITAL_INTENSITY -0.14968    0.21645  -0.692  0.5273
LEVERAGE     -0.04542    0.21151  -0.215  0.8405
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.4647 on 4 degrees of freedom
Multiple R-squared:  0.9337,    Adjusted R-squared:  0.8507
F-statistic: 11.26 on 5 and 4 DF,  p-value: 0.018
```

Table 2d involves the stats of the regression model drafted in subparagraph 3.4.2. At a significance level of 5%, it identifies that CbC reporting is negatively connected to the variable ETR. Thereby, some evidence is provided for a positive link between BEPS Action 13 and corporate tax avoidance, which discovery contradicts hypothesis 2.

### 4.2.3 Hypothesis 3

From the 188 firms that were used for the graphical display (subparagraph 4.1.3), I had to get rid of an additional number of 10. This by reason of them having missing data for one or more of the control variables. Thence, only 178 corporations have remained for the actual testing of hypothesis 3. The descriptive statistics of the whole dataset are written down in table 3a.

**Table 3a.** Descriptive Statistics H3.

<u>Variables</u>	<u>Mean</u>	<u>Median</u>	<u>SD</u>	<u>Minimum</u>	<u>Maximum</u>
<b>ETR</b>	27.978427	24.77	40.1966827	0	1136
<b>Environment_Pillar_Score</b>	65.4685787	69.385	21.9075509	1.58	98.91

<b>Social_Pillar_Score</b>	70.3969607	75.305	19.38361	2.16	98.2
<b>SIZE</b>	16.8326558	16.6585898	1.77648937	13.3937682	22.6163778
<b>ROA</b>	6.56974719	5.35	6.62737901	-1.85	128.42
<b>CAPITAL_INTENSITY</b>	23.4356473	17.9063592	21.6754456	.03143939	98.6500398
<b>LEVERAGE</b>	24.7250787	24.28	15.387309	0	71.22

What can be observed is that the highest ETR is 1,136%, whereas the lowest Environment\_Pillar\_Score is 1.58. The firms with an enormous ETR and/or environmental performance of 0 were thus deleted from the sample. However, I have again decided to calculate the yearly values on grounds of the median. This because the standard deviations are still relatively high. On top of that, I prefer to use the same methodology throughout my entire master's thesis.

#### *ETR and Environment Pillar Score*

For analysing the relation between ETR and Environment\_Pillar\_Score, it is needed to check for multicollinearity. Table 3b shows the output of a VIF test.

**Table 3b.** VIF Test H3 in Relation to ETR and Environment\_Pillar\_Score.

Environment_Pillar_Score	SIZE	ROA	CAPITAL_INTENSITY	LEVERAGE
16.596302	21.150348	3.083191	2.127140	6.417249

As Environment\_Pillar\_Score and SIZE are highly correlated (> 10), I have removed the control variable SIZE from the equation. This has made the VIF test acceptable (table 3c).

**Table 3c.** VIF Test H3 in Relation to ETR and Environment\_Pillar\_Score (excluding SIZE).

Environment_Pillar_Score	ROA	CAPITAL_INTENSITY	LEVERAGE
1.869613	2.074111	1.862721	3.764711

The regression model designed in subparagraph 3.4.3 is consequently altered in the way below.

$$ETR_t = \beta_0 + \beta_1 * Environment\_Pillar\_Score_t + \beta_2 * ROA_t + \beta_3 * CAPITAL\_INTENSITY_t + \beta_4 * LEVERAGE_t + \epsilon_t$$

Then, both a Breusch-Pagan and a Breusch-Godfrey test were conducted. The first one brought about a highly insignificant p-value of 0.9383 (table B7, appendix B). Therefore, it is certain that the error terms are not heteroscedastic. With a value of p equal to 0.02824 (table B8, appendix B), the second test is more problematic. Since this figure is significant at the 5%, but not at the 1% level, it is a doubtful case whether there is autocorrelation or not. I have chosen to not reject

the null hypothesis and to suppose that the errors are not correlated. Indeed, an alpha value of 0.01 is best known to me, justifiable, and often referred to in academic research. Besides, even if I assume that a certain amount of autocorrelation is present in the indicated analysis, it is not possible to remedy that issue in every respect. This due to the fact that SIZE had to be abandoned from the model while it does have an impact on corporate tax avoidance (= omitted variable) (Zimmerman, 1983).

Running the modified version of the function (stated above) has resulted in the following stats.

**Table 3d.** Statistical Testing H3 in Relation to ETR and Environment\_Pillar\_Score.

```
Call:
lm(formula = ETR ~ Environment_Pillar_Score + ROA + CAPITAL_INTENSITY +
    LEVERAGE, data = PD_Dataset_Regression_Analysis_H3_Yearly_Values_)

Residuals:
    1     2     3     4     5     6     7     8     9    10
0.35134 -0.64270  0.68001  0.16386 -0.05425 -0.65327  0.44027 -0.31351 -0.50291  0.53116

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)      44.09061     5.43520   8.112 0.000462 ***
Environment_Pillar_Score -0.18539     0.05763  -3.217 0.023547 *
ROA               -1.01000     0.57457  -1.758 0.139111
CAPITAL_INTENSITY  -0.13650     0.18674  -0.731 0.497594
LEVERAGE          0.05764     0.18262   0.316 0.765025
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.6757 on 5 degrees of freedom
Multiple R-squared:  0.8271,    Adjusted R-squared:  0.6888
F-statistic:  5.98 on 4 and 5 DF,  p-value: 0.03813
```

From table 3d can be derived that Environment\_Pillar\_Score has a negative effect on ETR. Seeing that the p-value is smaller than 0.05, but larger than 0.01, slight proof is given for a positive relationship between the environmental performance of firms and corporate tax avoidance. This finding is in contradiction with hypothesis 3.

### *ETR and Social Pillar Score*

When performing a VIF test including Social\_Pillar\_Score (instead of Environment\_Pillar\_Score) in the regression, the underlying results are generated (table 3e).

**Table 3e.** VIF Test H3 in Relation to ETR and Social\_Pillar\_Score.

Social_Pillar_Score	SIZE	ROA	CAPITAL_INTENSITY	LEVERAGE
16.50326	25.83804	3.64741	4.21722	15.19601

Now, three variables are highly correlated, namely Social\_Pillar\_Score, SIZE, and LEVERAGE. Because SIZE is the control variable with the highest score on multicollinearity, I have made the decision to delete this one from the model. Thereafter, the VIF test was run another time, which turned out much better than before (table 3f).

**Table 3f.** VIF Test H3 in Relation to ETR and Social\_Pillar\_Score (excluding SIZE).

Social_Pillar_Score	ROA	CAPITAL_INTENSITY	LEVERAGE
1.521837	2.009990	2.054237	2.902645

Hence, for the checking of hypothesis 3 in relation to ETR and Social\_Pillar\_Score, I rely on the next, adjusted equation.

$$ETR_t = \beta_0 + \beta_1 * \text{Social\_Pillar\_Score}_t + \beta_2 * \text{ROA}_t + \beta_3 * \text{CAPITAL\_INTENSITY}_t + \beta_4 * \text{LEVERAGE}_t + \epsilon_t$$

Through the Breusch-Pagan test ( $p = 0.3397$ ) (table B9, appendix B), it is confirmed that the errors are homoscedastic. Moreover, the Breusch-Godfrey test has established that they are not serial correlated either. The p-value of 0.06911 exceeds the level of 0.01 and also that of 0.05 (table B10, appendix B). This brings that the outcome is insignificant regardless.

**Table 3g.** Statistical Testing H3 in Relation to ETR and Social\_Pillar\_Score.

```
Call:
lm(formula = ETR ~ Social_Pillar_Score + ROA + CAPITAL_INTENSITY +
    LEVERAGE, data = PD_Dataset_Regression_Analysis_H3_Yearly_Values_)

Residuals:
    1      2      3      4      5      6      7      8      9     10
0.14383 -0.47727  0.29325  0.20335 -0.05229 -0.22796  0.45004 -0.25737 -0.65007  0.57449

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)      42.11642    4.36902   9.640 0.000204 ***
Social_Pillar_Score -0.12829    0.02933  -4.374 0.007196 **
ROA               -1.03315    0.45110  -2.290 0.070625 .
CAPITAL_INTENSITY  0.00688    0.15640   0.044 0.966617
LEVERAGE         -0.09789    0.12789  -0.765 0.478574
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.5389 on 5 degrees of freedom
Multiple R-squared:  0.89,    Adjusted R-squared:  0.8021
F-statistic: 10.12 on 4 and 5 DF,  p-value: 0.01293
```

Table 3g displays the statistics relating to the influence of Social\_Pillar\_Score on ETR. The connection between the two variables is negative and significant ( $p < 0.01$ ). With that, strong evidence is provided for corporate tax avoidance to be positively affected by the social part of CSR performance (= inconsistent with hypothesis 3).

## 5 Conclusion and Discussion

### 5.1 Conclusion

My master's thesis examines the effectiveness of existing legislation in preventing unethical corporate behavior by EU firms. Initially, I have given an overview of the prime literature regarding the exact meaning of *ethics of corporate behavior*. This has led to the belief that corporations act in a moral manner by not only focusing on their financials, but also on people and the environment (= based on the Stakeholder Theory). With respect thereto, CSR performance and corporate tax avoidance can be considered two main topics. As told, important legislative developments in these areas are the NFRD and BEPS Action 13. Hence, in my study, three sub-questions are central.

The first one is the following: 'How effective is the NFRD in improving EU firms' CSR performance?' Hypothesized is that the NFRD has a positive effect on the CSR performance of EU corporations. For starters, the mean and median values of Environment\_Pillar\_Score and Social\_Pillar\_Score have been displayed graphically. The indicated figures show that both variables improved over time, but that this is not necessarily due to the introduction of the NFRD. In addition, no empirical evidence is found for a positive connection between that directive and CSR performance. Indeed, the statistical testing of hypothesis 1 turned out to be insignificantly positive. This makes the NFRD ineffective in boosting EU firms' CSR performance.

The second sub-question that is answered, reads like this: 'How effective is BEPS Action 13 in reducing the degree to which EU firms avoid taxes?' The assumption is made that CbC reporting negatively influences corporate tax avoidance (measured through ETR). Again, to begin, a first impression is given by presenting the data in a graphical way. What stands out is that the yearly values of ETR do not seem to be higher as of 2016 than before. In fact, the medians even declined heavily during the period 2015-2017, which rather hints at a positive relationship between BEPS Action 13 and corporate tax avoidance. With the help of a (static) time series regression analysis, this dependency is verified: the dummy Post\_CBCR has a negative and moderately significant ( $p < 0.05$ ) impact on ETR. As BEPS Action 13 apparently increases the extent to which EU corporations engage in tax avoidance, it is not considered an effective legislation at all.

If CSR performance and corporate tax avoidance are (inter)related, changing the law in one area may have certain consequences in the other. Therefore, I have added the next (and last) sub-question: 'How are CSR and corporate tax avoidance (inter)related?' Presumed is that the latter is negatively affected by CSR performance. The graphical presentations of the data provide inconclusive results. On the basis of these, both a positive and a negative relation between the two belong to the possibilities. The statistical checking of hypothesis 3 gives a definite answer. It proves that Environment\_Pillar\_Score and Social\_Pillar\_Score negatively influence the variable

ETR (at a significant level of 0.05 and 0.01 respectively). This brings that CSR performance and corporate tax avoidance are positively linked, which is in contradiction with my original view. Thus, BEPS Action 13 might not only cause corporate tax avoidance to go up, but also CSR performance. However, since I have not examined the specified connection any further, I cannot establish it with certainty.

Altogether, my research reveals that existing legislation (i.e., the NFRD and BEPS Action 13) is not effective in making EU firms behave ethically better.

## 5.2 Discussion

### 5.2.1 Discussion of the Results

The majority of the findings are inconsistent with the results of prior studies. To start, Cuomo et al. (2022) and Fiechter et al. (2022) did find evidence for a positive relationship between the NFRD and EU corporations' CSR performance (subparagraph 2.2.3). A reason for the different outcomes may be the varying sample periods. Both aforementioned researches indeed take into account more pre-directive and less post-directive years than mine does. Hence, it might be the case that the NFRD is effective in the short run, but not in the long run. With this, a new insight is brought to the topic.

In reference to hypothesis 2, the (working) papers of Hugger (2019), Joshi (2020), and Tuinisma et al. (2023) have proven that CbC reporting positively influences the variable ETR (subparagraph 2.3.2). In my master's thesis, the exact opposite is observed. This discrepancy can again be explained by looking at the used samples. While my study concerns the period 2013-2022, the earlier ones relate to 2009-2017 or 2010-2018 instead. Thus, there is a possibility that BEPS Action 13 has a short-term negative and a long-term positive impact on corporate tax avoidance. Also, the dataset I have worked with does not necessarily include only (large subsidiaries of) EU MNEs. It is even so that some of the involved countries are not even subject to the BEPS Actions (footnote 3). What is imaginable is that CbC reporting has increased the ETRs of corporations to whom the rules apply, but that the ETRs of all other ones have fallen behind. In conclusion, some interesting ideas regarding the subject are generated on the basis of this master's thesis.

The connection between CSR performance and corporate tax avoidance in an EU setting is, as far as I know, not determined yet. My research therefore fills a gap in the literature by saying that the two are positively linked. Because the results of studies in other settings are inconsistent (paragraph 2.4), discussing this finding is not really doable nor meaningful.

All in all, it can be said that the promised scientific goals (subparagraph 1.3.1) are achieved. Respecting the societal contribution (subparagraph 1.3.2), I advise policymakers to invent new regulations in order to actually reduce unethical corporate behavior by EU firms. The introduction of the CSRD at the beginning of this year may have already been a step in the right direction.

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### 5.2.2 Limitations

Besides the things written in the last subparagraph, the next limitations are eventual causes of the outcomes being quite unexpected.

#### *Types of Corporations*

For the composition of the sample, I have just taken all available EU corporations within the Thomson Reuters Asset4 database: no filters (e.g., on size and industries) were applied whatsoever. Thence, there is a possibility that some specific types of firms are over- or under-represented, which can in turn be problematic in reference to the generalizability of my research.

What I also consider troublesome is that the sample may only consist of corporations performing well at CSR. From 2013 to 2016, reporting about CSR was indeed still voluntary. Therefore, it might be the case that especially firms with a relatively bad CSR performance had to be deleted due to missing values. Again, this gives rise to the idea that the different datasets are potentially not a good reflection of reality. However, the presence of this flaw can under no circumstances be prevented.

#### *Sample Sizes*

Whereas the original sample did consist of 1,425 corporation in total, a lot of them needed to be removed along the way. By this, the various datasets used for the regression analyses turned out rather small. That is why the outcomes may not hold for the EU as a whole; perhaps, the results just occurred by chance.

#### *Control Variables*

Although I have initially put 4 control variables in my models, I am aware of the fact that many more are out there. For example, in relation to corporate tax avoidance, Joshi (2020) also controlled for intangible assets and research and development (R&D), whereof the last is seen as a probable determinant of CSR performance as well (Visser et al., 2022). Not added either are industry, year, and country fixed effects.

Because of the above, I must acknowledge that the separate models could have been better specified in some respects. For this reason, the findings might be slightly biased.

#### *No Robustness Tests*

The regression outputs are built on the medians of all relevant variables. These results are not checked on robustness. On account of the small sample sizes, performing a robustness test (e.g., by calculating the yearly values on the basis of the mean instead) would not have contributed much to the things already found. However, the absence of an alternative research method does make the empirical evidence provided in this study a bit thin.

### 5.2.3 Recommendations for Future Research

First, to increase the trustworthiness of my findings, future research on the topic must involve a sample that is larger and more balanced. If the same is then concluded, it can be said that the observed effects have occurred in general. What is also important is that upcoming studies control for all explanatory variables possibly influencing the results. This in order to rule out the presence of omitted variable bias.

Secondly, it might be interesting to compare the outcomes of this master's thesis with those of a control group (e.g., firms operating in the US), which examination can be seen as a robustness check. Of course, other types of additional tests can be of value too.

Third, with respect to mandatory CSR reporting, future research should not only take into account the NFRD, but also the CSRD. Indeed, the CSRD is – even more than the NFRD – a very widespread and far-reaching directive, making this one potentially more effective in bettering EU firms' CSR performance.

Lastly, as already implied in the conclusion, I recommend academic writers to look into the connection between BEPS Action 13 and CSR performance more extensively. After all, with my study, I have given some indication of their relatedness.

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## Appendix A Variable Description and Data Source

**Table A1.** Variable Description and Data Source.

Variable	Definition
CAPITAL_INTENSITY	The ratio of net property, plant, and equipment to total assets.
Environment_Pillar_Score	Environment pillar score, based on publicly available data on the main categories: resource use, emissions, and innovation (LSEG, n.d.).
ETR	Effective tax rate, used as a proxy for the extent to which firms engage in tax avoidance and measured as income taxes divided by pretax income.
LEVERAGE	The ratio of total debt over total assets.
Post_CBCR	Dummy variable equal to 0 in the years 2013 to 2015 and equal to 1 in the years after.
Post_NFRD	Dummy variable equal to 0 in the years 2013 to 2016 and equal to 1 in the years after.
ROA	Return on assets, measured – by LSEG Workspace – through the following formula: $(\text{net income} + ((\text{interest expense on debt-interest capitalized}) * (1 - \text{tax rate}))) / \text{average total assets} * 100.$
SIZE	Natural logarithm of total assets.
Social_Pillar_Score	Social pillar score, based on publicly available data on the main categories: workforce, human rights, community, and product responsibility (LSEG, n.d.).

All (components) of the variables mentioned in the table above are derived from LSEG Workspace.

## Appendix B Statistical Tests

**Table B1.** Breusch-Pagan Test H1 in Relation to Environment\_Pillar\_Score.

<p>studentized Breusch-Pagan test</p> <p>data: Regression_Model_H1_Environment_Pillar_Score BP = 8.1911, df = 5, p-value = 0.146</p>
--

**Table B2.** Breusch-Godfrey Test H1 in Relation to Environment\_Pillar\_Score.

<p>Breusch-Godfrey test for serial correlation of order up to 1</p> <p>data: Regression_Model_H1_Environment_Pillar_Score LM test = 1.1604, df = 1, p-value = 0.2814</p>
--

**Table B3.** Breusch-Pagan Test H1 in Relation to Social\_Pillar\_Score.

<p>studentized Breusch-Pagan test</p> <p>data: Regression_Model_H1_Social_Pillar_Score BP = 7.211, df = 5, p-value = 0.2054</p>
---

**Table B4.** Breusch-Godfrey Test H1 in Relation to Social\_Pillar\_Score.

<p>Breusch-Godfrey test for serial correlation of order up to 1</p> <p>data: Regression_Model_H1_Social_Pillar_Score LM test = 1.4911, df = 1, p-value = 0.2221</p>
---

**Table B5.** Breusch-Pagan Test H2.

<p>studentized Breusch-Pagan test</p> <p>data: Regression_Model_H2 BP = 6.272, df = 5, p-value = 0.2806</p>
---

**Table B6.** Breusch-Godfrey Test H2.

<p>Breusch-Godfrey test for serial correlation of order up to 1</p> <p>data: Regression_Model_H2 LM test = 2.8181, df = 1, p-value = 0.09321</p>
--

**Table B7.** Breusch-Pagan Test H3 in Relation to ETR and Environment\_Pillar\_Score.

```
studentized Breusch-Pagan test  
  
data: Regression_Model_H3_ETR_and_Environment_Pillar_Score_2  
BP = 0.80095, df = 4, p-value = 0.9383
```

**Table B8.** Breusch-Godfrey Test H3 in Relation to ETR and Environment\_Pillar\_Score.

```
Breusch-Godfrey test for serial correlation of order up to 1  
  
data: Regression_Model_H3_ETR_and_Environment_Pillar_Score_2  
LM test = 4.8131, df = 1, p-value = 0.02824
```

**Table B9.** Breusch-Pagan Test H3 in Relation to ETR and Social\_Pillar\_Score.

```
studentized Breusch-Pagan test  
  
data: Regression_Model_H3_ETR_and_Social_Pillar_Score_2  
BP = 4.5237, df = 4, p-value = 0.3397
```

**Table B10.** Breusch-Godfrey Test H3 in Relation to ETR and Social\_Pillar\_Score.

```
Breusch-Godfrey test for serial correlation of order up to 1  
  
data: Regression_Model_H3_ETR_and_Social_Pillar_Score_2  
LM test = 3.304, df = 1, p-value = 0.06911
```