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The relation between reporting quality and CSR activities in voluntary and mandatory CSR regimes

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Abstract

The purpose of this thesis is to investigate whether stakeholders can use reporting quality as a tool to assess completeness and credibility of a CSR report. I hypothesize that a firm's perceived higher-quality reporting is associated with higher levels of real CSR activities using Stakeholder Theory and Voluntary Disclosure Theory. Results of a difference-in-difference analysis of 1,329 firms in the U.S. and EU show that reporting quality is significantly associated with CSR activities, more so in voluntary CSR regimes. Next, for EU-firms, higher CSR activities are observed after implementation of Directive 2014/95/EU which made CSR reporting mandatory within the EU. I conclude that when policymakers have the objective of increasing transparency and CSR activities in a country as a whole, a CSR reporting mandate would be a good option. Despite that the relation between reporting quality and CSR activities is less pronounced in a mandatory regime. After the transition to a mandatory regime, overall CSR activities rise and firms report more which even holds for early adopters of CSR reporting.

1 Introduction

In the last decades, stakeholders have monitored the way firms are performing environmentally and socially. Multiple research has been conducted on how climate change and firm-specific environmental risks influence a firm's stability and financial performance, e.g., Miles and Covin (2000), and Gangi, Daniele and Varrone (2020).

The European Commission defines Corporate Social Responsibility (CSR) as the duty of companies to "prevent, manage and mitigate any negative impact they may cause, including within their global supply chain". Here, the Commission primarily assigns the responsibilities to the companies to understand and handle their positive and negative impacts on society. Authorities like the European Union (EU) can facilitate and govern the companies' actions to protect citizens against those mentioned negative impacts when companies fail to prevent, manage, and mitigate. This can be done by helping firms to cooperate with firms in the same industries to tackle joint challenges, set standards for minimal adoption of CSR, raising awareness, and provide necessary training (European Commission, 2019).

In this thesis, I will examine the relationship between reporting quality and actual CSR activities in both voluntary and mandatory CSR regimes. I develop a hypothesis that reporting quality is a good indicator of social performance under Stakeholder Theory and increasing corporate reputation issues, meaning that reputation risks are under growing attention of stakeholders (and is not limited to investors). Under this hypothesis I expect that CSR activities are higher when reporting quality is higher. Next, I will investigate the opposite circumstances of voluntary and mandatory CSR regimes. I will do so by using Voluntary Disclosure Theory to predict that the association between reporting quality and CSR activities is even stronger in voluntary CSR regimes. Lastly, I will examine the effect of the new CSR mandate Directive 2014/95/EU which made CSR reporting mandatory within the EU. This research is important for policymakers because knowledge in this field helps them to create better legislation to increase social and environmental performance on the one hand and reduce information asymmetry on the other hand. At the same time, it is important for stakeholders to know how to assess CSR reports under different circumstances. Firms can learn from this research how the public views their CSR reports.

Research question: What is the relation between reporting quality and CSR activities in both voluntary and mandatory CSR regimes?

The results show a positive significant relation between reporting quality and CSR activities. The association is stronger in a voluntary CSR regime compared to a mandatory CSR regime. CSR activities have risen after implementation of the Directive 2014/95/EU. We can learn from these results that implementing a CSR reporting mandate makes it more difficult for firms to distinguish themselves as high performing firm. Policymakers should take this into account. On the other side, when policymakers have the goal of increasing CSR activities in the whole country, then initiating a reporting mandate is a good option. We see even for early adopters that they increase CSR activities.

2 Literature review

In this thesis, I examine the relation between CSR activities and reporting quality. Much research has been conducted on the effect of CSR reporting quality on CSR activities and the effect of mandated CSR on CSR activities. In this literature review, I will explore the science on the various relations in this broad spectrum. In section 2.1, the main aspects of CSR that distinguishes it from financial information will be explained. Section 2.2 elaborates on the differences between CSR reporting quality and CSR activities, while in section 2.3 several ways of measuring CSR are explained. Section 2.4 provides a brief overview of CSR legislation. In section 2.5, stakeholder pressure regarding CSR is explained. Section 2.6 is about mandated forms of CSR and particularly the effects of the Directive 2014/95/EU. In section 2.7, the role of external assurance in CSR is explained. Finally, section 2.8 dives into the relation between CSR and firm performance and other consequences.

2.1 Corporate Social Responsibility (CSR)

The term 'CSR' contains aspects of social, environmental, and other impacts firms may have on stakeholders. As with financial information, the various parts of CSR information are dependent on a firm's activities, industry, and size. However, some aspects make the disclosure of non-financial information significantly different than disclosure of financial information. In their paper, Christensen et al. (2019) describe the features of CSR reporting that distinguishes it from financial reporting. Due to CSR reporting's diversity of users, topics, objectives, and measurement , the presentation of the information may vary widely across firms. Moreover, the voluntary nature and long-term focus make measurement and comparison of firms' strategies and activities particularly more difficult than in the case of financial information, both for

stakeholders as for researchers. This makes the case for standardisation of CSR reporting practices.

2.2 The difference between CSR reporting quality and CSR activities

Stakeholders can use CSR reporting to assess a firm's performance on social and environmental level. But how well does the reporting reflect firm's actual performance? How are levels of CSR related to levels of environmental performance? Clarkson et al. (2008) elaborate on the distinction between Voluntary Disclosure Theory and Legitimacy Theory. Voluntary Disclosure Theory predicts a positive association between environmental performance and levels of environmental disclosure. High performing firms are expected to present themselves as such to gain the benefits from their superior position. These firms will disclose certain types of information that identifies themselves as good performers and difficult for bad performers to imitate. Low performing firms, however, are expected to disclose minimal information in an attempt to be seen as average. On the other hand, Legitimacy Theory predicts a negative association between environmental performance and disclosures. Low performing firms are expected to experience more pressure from stakeholders, so these firms have more incentives to change stakeholders' perspective, resulting in a situation that low performers disclose more than high performers. In the study by Clarkson et al. (2008) on U.S. firms, they find results that supports Voluntary Disclosure Theory, i.e., positive association with levels of performance and level of disclosure. On the contrary, Cho et al. (2012) find evidence that supports Legitimacy Theory by examining 119 U.S. firms. Cho et al. (2012) show that disclosing firms do not have lower pollution than non-disclosing firms. Moreover, high polluters disclose more environmentally related information in general, but the information is less material. This suggests that, when considering disclosure of non-financial information, stakeholders should be careful with assessing its information value.

But how does this work in a situation where disclosure is not voluntary but mandatory? Gramlich and Huang (2017) investigated that question by analysing Chinese firms that were mandated to report on CSR. Compared to a control group, the firms that were mandated to report on CSR showed better performance on an environmental level over the course of five years after implementation of the mandate. These results implicate that just initiating obligatory reporting standards for CSR could improve environmental performance nationwide.

2.3 Measuring CSR

In multiple papers the Thomson Reuters ASSET4 ESG database is used to quantify CSR activities. The database shows scores based on the self-reported information on environmental and social activities. Another way to operationalise CSR activities is conducted by Fiechter et al. (2020). By content analysis based on annual reports, Twitter communications, and company websites, they identified real CSR activities. Although this information was only used as a way of validating their main dependent variable, it shows us that content analysis is a powerful tool to identify or quantify social and environmental performance. Moreover, what the ASSET4 ESG database does, is actually a content analysis as well. The creators of the database quantify non-financial information based on what firms report themselves. It seems to be superfluous for researchers to engage in content analysis themselves since this ASSET4 ESG database is available.

When *reporting quality* is the independent variable in CSR studies, researchers often use a form of mandatory disclosure as a construct for an increase in reporting quality (e.g., Fiechter et al. (2020)). Another frequently seen method for operationalising reporting quality is the use of content analysis (e.g., Raucci & Tarquinio, 2020; Mion & Loza Adaui, 2019). Next, whether the CSR report is audited by an external auditor can be seen as a higher reporting quality (see section 2.7). In a broader perspective, reporting quality can be assessed by examining the reporting quality of all disclosures of a firm (i.e., not solely focused on *CSR* reporting). For example, restatements are a widespread used proxy for reporting quality. A restatement indicates that the initial report was not sufficient and / or contained false information, and / or initial reporting quality was lower (e.g., Cao et al., 2012).

2.4 CSR legislation

When examining concepts as reporting quality and CSR activities, evidence can be mixed between countries. In the study of Feichter et al. (2020) evidence is provided that one legislation can result in various responses between countries. The most important explanation to this variation is the variation in the starting point of CSR regimes. Some countries may have extensive regulations on CSR but other countries may have none whatsoever. The general conclusion is that while responses may be different, the end position of CSR activity levels will be more equal after implementation of a supranational directive, which may lead to more harmonised levels of CSR disclosure over countries.

An important development in the disclosure of non-financial information is Directive 2014/95/EU which set rules for public listed firms in the European Union. Under this Directive, starting in 2018, firms were mandated to disclose a minimum of information on their policies regarding environmental protection, social responsibility, and treatment of employees, respect for human right, anti-corruption and bribery, and diversity on boards. The CSR directive brings a new legislation on disclosure of non-financial information that covers 27 countries. In total, approximately 6,000 firms in the EU are submitted to this mandate, including listed companies, banks, insurance companies, and other public-interest entities. The Directive's goal is to make more information accessible for stakeholders and to equalise requirements of disclosure of non-financial information over jurisdictions. Before this mandate, a wide variety of levels of CSR requirements existed. In some countries, CSR disclosures were mostly voluntary, and the impact may have been higher than in other countries. In the end, levels of CSR disclosure were expected to equalise after some time. In section 2.6 some effects of the Directive are further discussed.

Currently in the U.S. there is no mandatory guideline for CSR reporting. Because disclosure is voluntary, there is substantial variation in levels of CSR disclosure between firms (Christensen et al., 2019). This makes it more difficult for stakeholders to compare CSR information between firms.

India was the first country in the world to make CSR expenditures mandatory for larger firms. The Indian Companies Act of 2013 required companies to invest at least 2% of their profit in CSR, whereas the definition of CSR in India is more philanthropic of nature. Maqbool and Zamir (2019) found that after implementation of the Act, CSR expenditures and levels of disclosure have risen significantly and to higher levels compared to other countries.

Starting in 2008, China has requirements for listed companies to report on CSR. In some regions, local governments have additional guidelines for CSR activities. CSR reporting has developed greatly since the government started putting attention on CSR matters. The number of Chinese companies that issued sustainability reports has risen from 19 in 2006 to 3,040 in 2016 (WBCSD, 2018).

In The Netherlands, the national government only provides guidelines regarding CSR on minimal information to report on corruption. For disclosure of other CSR related topics, the Dutch government refers to the OECD Reporting Guidelines as a recommended but not

obligatory practice. Only if firms want to qualify for government subsidies, the OECD Reporting Guidelines are a requirement. Other than that, publicly listed firms are subject to Directive 2014/95/EU.

2.5 Stakeholder Theory

As with financial information, the receivers of the CSR information are mainly investors. As stated in section 2.1, CSR reporting has more diversity in the users of the information. Who are those users? Stakeholders to be identified can be investors as well, as CSR information is linked with shareholder value (e.g., Clarkson et al. (2013)). Christensen et al. (2019) identify other users as consumers, employees, non-governmental organisations, and politicians to report on their impacts on those groups. For example, consumers may be interested in information on working conditions of clothing companies to assess whether one is contributing to the exploitation of workers in low-wage countries when buying clothes from that firm. The example also describes the motivation for firms to adopt CSR strategies. In a qualitative analysis, Ramirez (2013) dives into the way consumers view organisations and finds that being viewed as sustainably-oriented has benefits on several other reputation aspects as well.

From behavioural research we learn that stakeholders may react differently to negative environmental performance (e.g., Nyilasy et al. (2013)). In non-mandatory CSR circumstances, firms that choose to engage in CSR are subject to a higher degree of being watched by stakeholders. This would indicate that partaking in voluntary CSR means a firm commits itself to perform better on the social field because when stakeholders receive information that suggests otherwise (e.g., news articles on irresponsible environmental / social activities), the firms will be punished more severely. For firms that recognise themselves as lower environmental performers, it is better not to engage in CSR because punishment by stakeholders will be higher. In a mandatory CSR situation, all firms of certain sizes or other specific characteristics engage in CSR, so also the low performers. It is important to conduct further research to better understand how firms behave around environmental reporting and performance, so stakeholders can understand how to interpret disclosed information and policymakers can take better decisions.

In addition to literature on Stakeholder Theory, Hart and Zingales (2017) propose that public firms should not only strive for financial gains. Shareholder welfare is distinguished from shareholder value as the ultimate focus of a firm. Maximising shareholder welfare encompasses

more than financial goals, also containing environmental and social issues. The ultimate shareholders / stakeholders of a firm are people. This is even the case when the investor is an institutional investor such as an insurance company or pension fund. And those people are not only interested in financial gains (Hart and Zingales, 2017). The authors go as far as proposing that all kinds of corporate decisions are made after shareholder voting to get the firms' policies more in line with shareholder welfare. Apart from that, CSR is an important part of communication between a firm and its shareholders.

2.6 Mandated CSR

The effect of mandated CSR reporting on CSR activities was examined by Fiechter et al. (2020). They investigated the real effects of Directive 2014/95/EU (see section 2.4) on firms' CSR activities. The results show, that for EU firms that are subject to the new requirement, CSR activities have risen more than those of U.S. firms in the control group. Not only do they see a significant effect, but the effect already appears before the Directive's implementation date, meaning that firms have changed their behaviour in anticipation of the coming enforcement of the Directive. Using a difference-in-difference analysis, significant results show up as early as 2016, while one would only expect results to be significant as early as the fiscal year of 2018 as that is the first year the Directive came into force. Although CSR activities have been affected significantly, a distinction can be made within the broad spectrum of CSR. The researchers separate between social activities and environmental activities. Social activities appear to have a more pronounced result and the results are significant in earlier years than the environmental activities. Furthermore, we learn that firms respond to the Directive by increasing both social and environmental activities, but this is all. The researchers divide the EU firms into two groups: firms that have high exposure to the new Directive and firms that have low exposure to the new Directive. This stems from an ex-ante variation in regulation between jurisdictions. For example, a firm from a country with no regulations on CSR is about to be more exposed to the Directive 2014/95 than a firm from a country that already has legislation that is similar to the Directive. Although it would have made sense to divide both high and low exposure groups based on country of origin, the researchers did so based on level of CSR activities and CSR disclosures at the time the Directive was passed. Now only for the high exposure group and after the entry-into-force date significant results show up for environmental activities.

A study by Mion and Loza Adaui (2019) investigated the effect of the Directive 2014/95/EU by focusing on sustainability reporting quality, described by the researchers as the relation

between mandatory non-financial disclosure and sustainability reporting quality, and the Directive 2014/95/EU being the construct for mandatory non-financial disclosure. Sustainability reporting quality was measured by creating an instrument for analysing 20 determinants for quality in firms' reports. This was done in a desktop study by checking reports in the years before and after implementation. For firms in Germany and Italy, the Directive meant that they were obligated to disclose non-financial information to their stakeholders for the first time. Comparison of the legislation pre- and post-implementation showed that sustainability reporting quality improved for both countries, the most for Italy. Considering that Italy had lower levels of quality before implementation of the Directive, this evidence indicates that mandating non-financial disclosures not only increases reporting quality in general but also increases reporting quality more for firms with lower levels of quality before implementation and, consequently, equalises levels of quality over time.

Studies like the above have shown that after the implementation of the Directive, the average level of reporting quality has improved but more when initial quality was low. This raises the question of how firms with high reporting quality before the Directive react to the Directive. This study was conducted by Raucci and Tarquino (2020). Results show that less performance indicators were disclosed after implementation of the Directive, which indicates that firms that report voluntary, disclose more when CSR is voluntary than when CSR is mandatory. In the mandatory situation, firms are more likely to just comply with standards than to disclose more than is necessary according to the standard.

Research conducted by Jackson et al. (2019) also contributes to the idea that mandatory CSR reporting does not lead to a more preferred situation. By making a comparison between countries with mandatory CSR and non-mandatory CSR, their research provides evidence that regulation is associated with increased levels of CSR activities but not with decreased levels of Corporate Social Irresponsibility (irresponsibility based on firms' corporate controversies and scandals). CSR disclosures could be used by firms as a strategy to legitimate irresponsible activities. The authors conclude that only when non-financial disclosure has greater levels of external assurance, the information quality of CSR will improve. So, policymakers can use mandating external assurance of CSR as a better way to reduce acts of irresponsibility than mandating CSR reporting.

In the analysis of Christensen et al. (2019), it is suggested that we can learn from general literature on financial information disclosures that more information is better. More

specifically, capital markets work better in a situation where firms are transparent about their activities. When investors have access to information, they can better estimate the value, and markets experience lower cost of capital and better capital allocation. Besides that, firms are expected to increase their CSR activities after being subject to a reporting mandate.

2.7 External assurance / environmental and social audits

As discussed in section 2.2, Legitimacy Theory is a problem if firms actively try to make themselves look better. Is external assurance on CSR or social audits a possible solution to problems associated with Legitimacy Theory? An external auditor may add value to the trustworthiness of information of a CSR report. Al-Shaer and Zaman (2018) provide evidence that the existence of an audit committee adds value to the assurance of a sustainability report. In general, an audit committee provides overview of the processes in a firm regarding financial reporting, internal control, and compliance. Examining firms from the UK that have an audit committee installed besides having a board of directors and a sustainability committee, are more likely to have their CSR report voluntarily audited by an external auditor. The fact that firms have their CSR report externally assured, is considered to be more credible reporting.

External assurance can also be used by firms to distinguish themselves as better performer than other firms. In a pre-mandated setting, good-performing firms distinguish themselves by issuing a voluntary CSR report. After a mandate, all firms must issue a CSR report and the possible benefits of the good-performing firm have decreased. Now having the CSR report externally assured can be a tool to avoid 'pooling.' Their CSR report will be seen as more credible, and readers can identify the firm as a good-performing firm. Ioannou and Serafeim (2017) show that there is an increase in voluntary external assurance on CSR reports after mandates in several countries.

In their analysis on CSR assurance, Casey and Grenier (2015) conclude that providing assurance on CSR information increases the benefits on the capital market. As stated in section 2.6, capital markets function better when there is more transparency. On top of the evidence that assurance is linked to lower cost of capital and lower analysts' costs, the researchers find that the effect is stronger when the assurance is provided by an accounting firm over a social/environmental auditor.

From a behavioural experiment, Pflugrath et al. (2011) conclude that the credibility of CSR reports is significantly increased after external assurance, ven more so when the assurance stems from a professional accountant rather than from an environmental consultant. To gather information, Pflugrath et al. (2011) questioned financial analysts on how they perceive credibility of certain assurance reports. Taking it a step further, De Meyst et al. (2017) examine whether external assurance has an influence on the firm's behaviour. In an experimental environment, users and preparers of CSR reports are represented as sellers and buyers of information. It turned out that preparers are more likely to disclose accurately about CSR in a situation of external assurance. At the same time, the users of information value the assured information as more valuable, as they were willing to pay a higher price. We can learn from this that there is a substantial market for accounting firms to conduc CSR audits and that authorities can increase the effect of a reporting mandate by mandating external assurance.

So, reporting standards for non-financial disclosures can be a powerful tool when governments want to impact social / environmental behaviour of firms. However, to achieve those effects, regulation must have some enforcement. Just providing guidelines may not be enough; There must be a penalty for non-compliance or, otherwise, the disclosure regulation still has a voluntary character. Enforcement is also the way of protecting stakeholders from undesirable behaviour of firms, i.e., from withholding information that is of value to stakeholders. We must not underestimate the extent to which firms may react to 'mandated' disclosure legislation. For example, effects may be stronger in countries where enforcement is stricter, like China. Christensen et al. (2019) present some conditions for effective enforcement. Verifiability of information, internal control and measurement systems for firms, investments in infrastructure and expertise for authorities, and finally a possible flexible application of standards. There are multiple indications that external assurance of CSR of 'social audits' can offer help with the challenge of getting the desired effects of implementation of legislation on CSR reporting (e.g., Jackson et al., 2019).

2.8 CSR activities and firm performance

Over the course of many years, countless studies have explored the relationship between CSR reporting and firm performance. Still, the evidence is mixed. Garcia-Castro et al. (2009) point out the importance of accounting for endogeneity. Several omitted variables could be responsible for the observed relationship by researchers of data regarding CSR and firm performance. Moreover, in earlier literature, a wide variation in effects have been found in

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effects of voluntary/mandated disclosure. This stipulates that CSR reporting itself is not a reliable measure of CSR activities. As a result of getting better understanding of the relation between reporting and actual activities, we can better interpret literature on CSR reporting as a whole.

For firms, it can be costly to adopt CSR strategy, reporting, and activities. The costs of applying activities to adopt CSR are called compliance costs. On the other side of compliance costs, are the risks for a firm to have negative consequences of not adopting to CSR strategies. These risks may include potential reputation damage. So, adopting CSR strategies may also reduce risks of costs. Based on this theory, Bian et al. (2021) describe a win-win situation with high exposure risk and low compliance costs.

In a study of Chinese firms, examining the impact of mandated CSR disclosure, Chen et al. (2018) focus on financial effects and environmental pollution effects. A mandate of 2008 did not require firms to engage in CSR activities, it only required firms to issue a CSR report with their annual report. In a difference-in-difference research design, firms that were subject to the new mandate were compared to similar firms that were not. Results show that the firms in the treatment group have negative financial effects. Decrease in return on assets and return on equity were pointed out as results of the mandate. Likewise, the treated firms showed a decrease in turnover and an increase in operating costs. Moreover, the results show that in areas that are more impacted by the mandate, pollution levels decline more sharply, meaning that in areas where a higher percentage of firms is submissive to the mandate, effects are stronger. These two findings show that solely providing guidelines on reporting can alter firms' behaviour and may impact both on a financial and environmental level.

In a study examining the effect of new legislation on Indian firms, Manchiraju and Rajpogal (2017) find that forced expenditures on CSR have a negative impact on shareholder value. On the other hand, they find that voluntary spending on CSR has a positive effect on shareholder value. Previously, McWilliams and Siegel (2001) find a neutral relation between CSR and financial performance. The researchers of this paper view CSR as an investment with the aim to maximise profits, which is basically like all investments and the general goal of most firms. Within this principal they build a theory for an optimal level of CSR based on firms' size, industry, research and development spending, government sales, and type of costumers. Following these indicators, each firm has an optimal level of CSR where the marginal benefits

equal the marginal costs and profits are maximised. This way the highest level of CSR is reached for all stakeholders, e.g., consumers (want high CSR) and investors (want low cost).

Also, results of the study by Feichter et al. (2020) show that firms that have a bigger increase in CSR activities, experience lower Return On Assets. Moreover, the market value of firms with a low ex-ante level of CSR were negatively affected by the introduction of mandated CSR reporting.

3 Methodology

In the methodology chapter, hypotheses are explained, the regression model is drafted, followed by an explanation of all variables, controls, and statistical methods. In the last section, the data collection method is clarified.

3.1 Reporting quality and CSR activities

Legislators have several goals with introducing laws on CSR reporting. Not only do they want to increase transparency for stakeholders, but they also wish to intensify CSR activities to improve circumstances of employees, other stakeholders, and the environment as a whole. The rationale is that when firms need to publish information on these topics, they get more attention from the public. As firms obviously do not want to report bad news, they are more likely to change their behaviour on CSR activities. Whenever the reporting subject turns out to be negative, a firm will try to do better next year. Therefore, it is worth to further research the question as to whether a change in CSR reporting quality is equal to a similar change to CSR activities.

Looking back to Stakeholder Theory (see section 2.5), firms have an obligation to not only create value for shareholders but for all stakeholders. This creates the fundamentals for the need of CSR and, subsequently, the need of CSR reporting. Firms should look further than the welfare of shareholders, i.e., consider the welfare to society as a whole. To accomplish that, CSR reporting is a powerful tool to inform the public on a firm's impact, which consists of (and is not limited to) environmental information, social policies, product quality, and strategies. For that information to be considered as valuable, it needs to be timely, material, and reliable. Therefore, firms that consider themselves as high performing, have an incentive to present CSR reports in such a way it is considered as reliable. Following this line, Stakeholder Theory may expect to find evidence that quality or levels of transparency of reports is connected to the firm's actual CSR performance. Therefore, the first hypothesis is as follows:

Hypothesis 1: Higher levels of reporting quality is associated with higher levels of CSR activities.

According to Legitimacy Theory (see section 2.2), firms need to behave in a certain way to keep their stakeholders satisfied. By using disclosures, stakeholders are informed about the firm's activities, both financially as in terms of CSR. Legitimacy Theory also predicts that firms will try to alter public perception. For example, a firm in a very pollutive type of industry may try to legitimise its activities by disclosing all kinds of information on green initiatives, while still being as pollutive as other firms in the industry. Therefore, it can be said that firms use disclosures to make themselves look better, while diminishing the information value of full CSR reporting. Following this train of thought, Legitimacy Theory predicts to find no evidence supporting Hypothesis 1.

To test Hypothesis 1, I will run regression analyses to assess whether reporting quality is linked to CSR activities. As reporting quality is such a broad term, and not one proxy covers it sufficiently, I need to use multiple proxies to measure it. The operationalised question is whether restatements and presence of an external auditor are correlated with the ASSET4 ESG variable. The control variables will be based on total assets, net sales, and number of employees. The database will be divided in fiscal years and countries to examine differences in correlation over time and over countries. Additional tests can be done to further investigate observed differences and to assess whether those differences are significant.

The following model is used to test Hypothesis 1:

CSR act = a + bRQ + cCV + e

- CSR act: measure for CSR activities based on the ASSET4 ESG variable
- RQ: reporting quality
- CV: control variables
- e: error term

When Stakeholder Theory is most dominant in this case, the coefficient of reporting quality is expected to be positive and significant, meaning that higher levels of reporting quality are indeed associated with higher levels of CSR activities. When Legitimacy Theory is most linked with the truth, there will be no association. In that case, the coefficients of reporting quality are insignificant, or negative and significant.

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3.2 Circumstances of high variation

Because there is currently no mandatory guideline for CSR reporting in the United States, meaning disclosure on CSR is voluntary, I expect the variation in levels of disclosure to be relatively higher than in countries that have mandatory disclosure.

From the Voluntary Disclosure Theory (see section 2.2) we learned that management may use voluntary disclosures to reduce information asymmetry with stakeholders. Voluntary disclosures go beyond what is set as minimum standards by legislators and are a way to distinguish itself as a good performing firm compared to other firms. Following this theory, it is often assumed that firms choosing to disclose more than the minimum necessary are high performing on CSR activities. In a situation where CSR reporting is voluntary and variation in reporting levels is high, the effect of Voluntary Disclosure Theory should be more present. Firms are more bothered to present themselves as a good performer, so reporting quality must be high. Therefore, Voluntary Disclosure Theory predicts to find evidence that supports Hypothesis 2.

Hypothesis 2: The relation between CSR activities and reporting quality is more pronounced in countries with voluntary CSR regime compared to countries with a mandatory CSR disclosure regime.

To test hypothesis 2, the data are divided into two regions: United States firms and European Union firms. Under Voluntary Disclosure Theory, the coefficient for reporting quality is expected to be positive and significant in both regions but more so in the United States (U.S.). The rationale is that variation of CSR activities is higher in the U.S., so firms are more engaged in being viewed as a high performer when they consider themselves as high performing.

CSR act = a b RQ + cCV + dummy voluntary + dummy voluntary * RQ +e

To test hypothesis 2, I take the initial model and add a dummy variable for voluntary disclosure. Next, an interaction variable is added to capture the combined effect of reporting quality in voluntary regimes. When the coefficient of the interaction term is significant, the effect of reporting quality on CSR activities is higher under voluntary regimes.

3.3 Mandatory situation

In a mandatory situation, less variation in levels of CSR disclosure is expected. As we learned in section 2.6, Fiechter et al. (2020) found evidence that firms with lower ex ante levels of CSR activities were more affected by the implementation of the mandated CSR reporting standards.

Besides, Mion and Loza Adaui (2019) found that reporting quality is more affected by a mandate when initial quality is lower. On the other hand, Raucci and Tarquino (2020) found that ex ante high performing firms report less after implementation of the mandate, supporting Voluntary Disclosure Theory.

Another way to test Hypothesis 2 is to consider the effect of a reporting mandate, such as Directive 2014/95/EU. As stated in section 2.3, a reporting mandate is often used as a proxy for increased reporting quality. By looking into the effects of the implementation of the Directive, I use an alternative way to test the results on Hypothesis 2.

3.4 Data

To test both hypotheses, data containing indicators of CSR activities and reporting quality are acquired. CSR activities are operationalized by the ASSET4 ESG variable from the Thomson Reuters ASSET4 database. This is a widespread used variable to measure CSR activities (see section 2.3). Non-financial information regarding environmental, social, and corporate governance issues reported by a firm in its annual report is converted to a score from 0-100.

Two variables are used for reporting quality: The first variable is whether the firm has an external auditor for the CSR report. As explained in section 2.7, the credibility of a CSR report is significantly increased after providing external assurance. Therefore, the presence of an external auditor is used as a proxy for reporting quality. The second variable indicates that a firm has restated previous disclosed data, which illustrates that reported information was incorrect and should be corrected. In this case, one can assume that reporting quality is low in the event of restatement.

The sample consists of firms from the EU and U.S. that have an ESG score in the years 2012 up until 2019. This is panel data, meaning that the observations over time are for the same firms each year. Another feature of this sample is that it consists of early adaptors regarding CSR reporting. Only firms that already issued a CSR report in 2012 and continued to issue annually up to 2019, are in the dataset. This is not a random sample and should be considered when making inferences based on the sample.

To control for external effects, some control variables are added. Firstly, variables related to firm specific aspects, such as total assets, net sales, and number of employees, are included in the model. Finally, the model controls for year effects and takes the firm's individual fixed effects into account.

4 Results

In the results chapter, I discuss the results of my statistical analysis. In section 4.1, the structure of the dataset is explained. Section 4.2 provides the results of testing Hypothesis 1, while in section 4.3 the results of testing Hypothesis 2 are explained. Section 4.4 looks into the effects of the implementation of Directive 2014/95/EU. Some additional checks for robustness of results are explained in section 4.5. Of all results, the tables can be found in the Appendix of this thesis.

4.1 Descriptive statistics

The dataset consists of publicly listed firms that have ESG scores in the years 2012 up to and including 2019. This led to a sample of 662 firms from the U.S. and 667 firms from the EU. Due to some data restrictions, all years have a few less observations than the initial number of selected firms. Those observations have been omitted from the dataset. As stated in Table 1, Panel A, the overall number of observations is approximately equally distributed over years and between U.S. and EU. In total, the dataset consists of 5,143 firm-year observations for the U.S. and 5,210 firm-year observations for the EU. Within the EU the number of observations is distributed over 19 member states, see Panel B of Table 1.

The dependent variable in the analysis is the Thomson Reuters ASSET4 ESG-score, indicating the firm's level of CSR activities in a given year. The score is a number between 0-100, where a higher score represents a higher level of CSR activities. The ESG-scores show a relatively normal distribution with some skewness to the left.

All other variables are the dependent variables and are described in Table 2. The variable "External Audit" is a dummy indicating whether a firm had their CSR report externally audited. With a mean of 0.36, it indicates that 36 percent of the firm-year observations have their CSR report audited by an external auditor. The variable "No Restatement" is a dummy variable indicating whether a firm had their initial report withdrawn and revised. Because we are interested in reporting quality and the absence of a restatement is considered as higher reporting quality, the variable takes a value of 0 in the case of a restatement and a value of 1 in the case of no restatement. These two variables together are the proxy for reporting quality in this analysis. Additionally, for the purpose of testing the second hypothesis, a combined reporting quality variable is added where the two variables are multiplied by each other. Lastly, a dummy

variable indicates whether a country has a voluntary or mandatory regime concerning CSR reporting, where countries with a mandatory regime have a value of 0 and countries with a mandatory regime have a value of 1. The remaining variables are control variables. Firstly, a variable indicating whether a firm is in the U.S. or in the EU, where firms from the U.S. have the value 0 and firms from the EU have the value 1. Lastly, the variables related to firm characteristics are leverage, return on assets, number of employees, total assets, and net sales in the firm year. For total assets and net sales, all values are converted to euros. The continuous variables are corrected for outliers using the Winsorizing function in Stata. This gives the values of the lowest 1% the value of the observation at the 1st percentile. At the same time, the highest one percent are transmitted in the value of the 99th percentile. In the regressions, the log values of total assets, net sales and employees are used. Additionally, I added dummy variables to control for year and firm fixed effects.

4.2 Association between reporting quality and levels of CSR activities

In the first equation, the main subject of this thesis is addressed, namely whether higher levels of reporting quality are associated with higher levels of CSR activities. Table 3 shows the result of the model of Hypothesis 1 (see section 3.2) with 'ESG' as indicator for CSR activities, and 'reporting_quality' as the combined proxy for reporting quality.

Equation 1: ESG = a + b*reporting_quality + e

Looking at the results in Table 3, Panel A, the sign and magnitude of the reporting quality variable indicates that the basic model predicts significantly higher ESG values for firms that are considered to have high reporting quality. When controlling for firm size and fixed effects in Panel B and C, the coefficient is smaller, but still higher ESG scores are expected for firms that have high reporting quality. Overall, this is evidence that supports Hypothesis 1, and it should not be rejected. Stakeholder Theory is most dominant in this situation and higher levels of reporting quality is linked with higher levels of CSR activities.

4.3 Association between reporting quality and levels of CSR activities in a voluntary vs. mandatory CSR regime

The second matter of interest is the question on how the results differ between a voluntary versus a mandatory CSR regime. The same model is used as in equation 1 but a dummy variable for voluntary CSR regime is added. All firms from the U.S. have the label of voluntary regime.

In the EU, after 2017 all firms have the label of mandatory regime. Up until 2017, it varies over countries.

Equation 2: ESG = a + b*reporting_quality + c*voluntary + d*interaction (reporting_quality*voluntary) + e

As with the results of equation 1, the coefficient of 'reporting quality' in Table 4 shows significant increases of ESG scores when reporting quality is high. The negative coefficient for 'voluntary' tells us that ESG scores are expected to be lower in a voluntary situation. The coefficient of the interaction term is positive and significant, meaning that the relation between reporting quality and ESG scores is stronger in countries with a voluntary CSR regime compared to countries with a mandatory CSR disclosure regime. Both in mandatory and voluntary regimes, ESG scores rise with reporting quality, but more so (with 5.42 points) in a voluntary regime. These results are evidence in favour of hypothesis 2.

Overall, ESG scores are, on average, higher in a mandatory CSR regime, ESG scores increase when CSR disclosures shifts from a voluntary to a mandatory regime, ESG scores rise with reporting quality, and they do so more within a voluntary regime. Lastly, within the voluntary regime the spread of CSR scores is bigger, meaning that lower ESG scores are expected for low reporting quality firms and higher expected ESG scores for high reporting quality firms.

4.4 The effect of the implementation of Directive 2014/95/EU

In order to use the implementation of a reporting mandate as a proxy for increased reporting quality, I look into the effect of Directive 2014/95/EU on the ESG score. The scores of firms are compared before and after the implementation date, as with the dummy variable post_directive. Only firms in the EU are subject to the reform, so the change in ESG scores of EU firms is compared to the change in ESG scores of firms from the U.S. This leads to the equation of the difference-in-difference model:

Equation 3: ESG = a + b*U.S./EU + c*post_directive + d*interaction (U.S./EU*post_directive) +e

As can be seen in Panel A of Table 5, the coefficient of the interaction term indicates the difference in the change before and after implementation of EU firms, compared to the difference over time in the U.S. The basic model (with no control variables) shows that on

average, ESG scores increased in the EU with 20 points more compared to the increase in the U.S. This difference is significant at a 1% level. Also, if control variables are added (Panel B) and when firm specific and year specific fixed effects are taken into account (Panel C), the interaction term is approximately 12.3 and significant. This is evidence that the implementation of the Directive led to higher ESG scores of EU firms compared to U.S. firms of 12.3 points.

Another way to look at the effect of the Directive on ESG scores in the EU, is to identify two groups within the EU that have an important difference. In some countries reporting on CSR activities was already mandatory before the EU made it so. In theory, nothing much changed in those countries. Other countries did not have a mandate before 2018, meaning that those firms are probably more effected (exposed) by the Directive. These firms are identified as 'high exposure' firms and are considered to have an increase in reporting quality within their country. In Equation 4 the independent variable 'exposure' is added and indicates firms with low exposure (0) and high exposure (1). This way the average scores of firms from high exposed countries can be compared to low exposed countries. This time only firms within the EU are in the sample.

Equation 4: ESG = a + b*exposure + c*post_directive + c*interaction (exposure*post_directive) +e

From the results of equation 4 in Table 6 we can learn that, also within the EU, the Directive has various consequences on mean ESG scores over countries. As indicated by the negative coefficient for 'exposure' in the models with control variables (Panel B and C), on average, the mean ESG score is lower for 'high exposed' firms. Meanwhile the change in ESG scores is higher for those firms. The interaction term of 'exposure' and 'post directive' takes the value of around 3 in all models, meaning that in countries where no mandate was in force before 2018, average ESG scores have risen with 3 points more compared to countries that already had mandatory CSR reporting.

To summarize, the implementation of Directive 2014/95/EU in 2018 has led to higher ESG scores for firms in countries that did not have a mandate before 2018. This seems obvious but the dataset only consists of early adaptors of CSR reporting. Meaning that all firms already had CSR reports from 2012 to 2017 when no mandate was in force. So even though the firms in the sample already reported on CSR, the implementation of the Directive led to higher ESG scores, also when taking into account time trends in the U.S. and time trends within the EU.

4.5 Robustness checks

In order to check if the results are robust, some additional analyses are conducted. Firstly, an ordinary least squares regression is made with all the main variables, robust standard errors, and clustered standard errors to see if all variables still stand. In all models of Table 7, the reporting quality variable remains intact as significant predictor. Only the control variables of leverage are not significant to the models. Next, a calculation of Variation Inflation Factor (VIFs) is used to detect multicollinearity between variables. Multicollinearity is the case when there is correlation between predictor variables in a model, which can affect the regression results in an undesirable way. As can be seen in Table 8, The VIF factors in the model are on average 2.58, meaning that they are moderately correlated but not problematic. Generally, VIFs higher than 5 or 10 are considered to be too highly correlated. An additional check on the reporting quality variable was conducted by not multiplying the proxies but adding them up to a sum. This way, the variable can have the value of 0, 1, or 2. When doing the same regression as with equation 1, results are very similar, so the variable seems to be robust.

5 Conclusion

In this thesis, I studied the relationship between reporting quality and CSR activities. I used a pooled sample of 1,329 firms from the U.S. and EU in the period of 2012 to 2019. The main limitation of this research is that all firms in the database are early adopters of CSR reporting, meaning that those firms were much earlier with reporting on CSR activities compared to most firms in the U.S. and EU. The problem with a sample that is not randomly selected is that one must be careful with making inferences about the population.

The results of the study show that reporting quality is positively associated with CSR activities. This is in accordance with Stakeholder Theory, that predicts that firms are concerned with interests of all stakeholders and strive for more than just shareholder value. Next, in accordance with Voluntary Disclosure Theory, I have found that the association is stronger in voluntary CSR regimes compared to mandatory regimes. The advantage of a mandatory regime is overall higher CSR activities within a country. The downside is that the spread of reported CSR activities is lower. This would mean that firms have more difficulty to distinguish themselves as 'high performing' within a mandatory regime. This could be an increase of information asymmetry for stakeholders. Policymakers need to take this into account when opting for a CSR reporting mandate.

Lastly, I have found that the implementation of the Directive 2014/95/EU has similar effects. Results show overall higher CSR activities in the EU after implementation. For countries within the EU under a voluntary CSR regime, CSR activities increased stronger than for countries that already had a mandatory regime. In some studies, implementation of a reporting mandate is used as a proxy for increased reporting quality. However, in this sample the firms already report on CSR activities, but the implementation can be viewed as an increase of reporting quality within the entire country. From these results we can learn that early adopters of CSR reporting respond to a mandate as well, as the CSR activities have increased after implementation of the mandate. These results are in accordance with the study of Mion and Loza Adaui (2019) and the study of Fiechter et al. (2020).

The downside of a mandatory regime would be the less pronounced association between reporting quality and CSR activities. Firms are less capable to use reporting quality to distinguish themselves as high performer and stakeholder will have more difficulty with interpreting CSR reports. Still, we can conclude that when policymakers have the objective of increasing transparency and CSR activities in a country as a whole, a CSR reporting mandate would be a good option: Overall CSR activities rise and firms report more, which even holds for early adopters of CSR reporting.

References

Al-Shaer, H., & Zaman, M. (2018). Credibility of sustainability reports: The contribution of audit committees. *Business Strategy and the Environment*, *27*(7), 973–986. https://doi.org/10.1002/bse.2046

Bian, J., Liao, Y., Wang, Y. Y., & Tao, F. (2021). Analysis of firm CSR strategies. *European Journal of Operational Research*, *290*(3), 914–926. https://doi.org/10.1016/j.ejor.2020.03.046

Cao, Y., Myers, L. A., & Omer, T. C. (2012). Does Company Reputation Matter for Financial Reporting Quality? Evidence from Restatements. *Contemporary Accounting Research*, *29*(3), 956–990. https://doi.org/10.1111/j.1911-3846.2011.01137.x

Casey, R. J., & Grenier, J. H. (2015). Understanding and Contributing to the Enigma of Corporate Social Responsibility (CSR) Assurance in the United States. *Auditing: A Journal of Practice & Theory*, *34*(1), 97–130. https://doi.org/10.2308/ajpt-50736

Chen, Y. C., Hung, M., & Wang, Y. (2018). The effect of mandatory CSR disclosure on firm profitability and social externalities: Evidence from China. *Journal of Accounting and Economics*, *65*(1), 169–190. https://doi.org/10.1016/j.jacceco.2017.11.009

Cho, C. H., Freedman, M., & Patten, D. M. (2012). Corporate disclosure of environmental capital expenditures. *Accounting, Auditing & Accountability Journal*, *25*(3), 486–507. https://doi.org/10.1108/09513571211209617

Christensen, H. B., Hail, L., & Leuz, C. (2019). Adoption of CSR and Sustainability Reporting Standards: Economic Analysis and Review. *SSRN Electronic Journal*. Published. https://doi.org/10.2139/ssrn.3427748

Clarkson, P. M., Fang, X., Li, Y., & Richardson, G. (2013). The relevance of environmental disclosures: Are such disclosures incrementally informative? *Journal of Accounting and Public Policy*, *32*(5), 410–431. https://doi.org/10.1016/j.jaccpubpol.2013.06.008

Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society*, *33*(4–5), 303–327. https://doi.org/10.1016/j.aos.2007.05.003

De Meyst, K., Cardinaels, E., & Van den Abbeele, A. G. H. L. (2017). CSR in Buyer/Seller Markets: The Impact of Assurance of Sustainability Reports and Incentives for CSR Investments. *SSRN Electronic Journal*. Published. https://doi.org/10.2139/ssrn.2645965

European Commission. (2019, March). *Corporate Social Responsibility, Responsible Business Conduct, and Business & Human Rights: Overview of Progress*. https://ec.europa.eu/docsroom/documents/34963

Fiechter, P., Hitz, J. M., & Lehmann, N. (2020). Real Effects of a Widespread CSR Reporting Mandate: Evidence from the European Union's CSR Directive. *SSRN Electronic Journal*. Published. https://doi.org/10.2139/ssrn.3725603

Gangi, F., Daniele, L. M., & Varrone, N. (2020). How do corporate environmental policy and corporate reputation affect risk-adjusted financial performance? *Business Strategy and the Environment*, *29*(5), 1975–1991. https://doi.org/10.1002/bse.2482

Garcia-Castro, R., Ariño, M. A., & Canela, M. A. (2009). Does Social Performance Really Lead to Financial Performance? Accounting for Endogeneity. *Journal of Business Ethics*, *92*(1), 107–126. https://doi.org/10.1007/s10551-009-0143-8

Gramlich, J., & Huang, L. (2017). The Effect of Mandated CSR Disclosure on the Pollution Levels of Publicly-Traded Chinese Firms. *SSRN Electronic Journal*. Published. https://doi.org/10.2139/ssrn.2906533

Hart, O., & Zingales, L. (2017). Companies Should Maximize Shareholder Welfare Not Market Value. *SSRN Electronic Journal*. Published. https://doi.org/10.2139/ssrn.3004794

Ioannou, I., & Serafeim, G. (2017). The consequences of mandatory corporate sustainability reporting. *Harvard Business School Research Working Paper*, *11*(100). https://ssrn.com/abstract=1799589

Jackson, G., Bartosch, J., Avetisyan, E., Kinderman, D., & Knudsen, J. S. (2019). Mandatory Non-financial Disclosure and Its Influence on CSR: An International Comparison. *Journal of Business Ethics*, *162*(2), 323–342. https://doi.org/10.1007/s10551-019-04200-0

Manchiraju, H., & Rajgopal, S. (2017). Does Corporate Social Responsibility (CSR) Create Shareholder Value? Evidence from the Indian Companies Act 2013. *Journal of Accounting Research*, *55*(5), 1257–1300. https://doi.org/10.1111/1475-679x.12174

Maqbool, S., & Zamir, M. N. (2019). Corporate Social Responsibility Reporting in India: A Study of SENSEX Companies. *Management and Labour Studies*, *44*(2), 209–223. https://doi.org/10.1177/0258042x19832122

McWilliams, A., & Siegel, D. (2001). Corporate Social Responsibility: a Theory of the Firm Perspective. *Academy of Management Review*, *26*(1), 117–127. https://doi.org/10.5465/amr.2001.4011987

Miles, M. P., & Covin, J. G. (2000). Environmental Marketing: A Source of Reputational, Competitive, and Financial Advantage. *Journal of Business Ethics*, *23*(3), 299–311. https://doi.org/10.1023/a:1006214509281

Mion, G., & Loza Adaui, C. R. (2019). Mandatory Nonfinancial Disclosure and Its Consequences on the Sustainability Reporting Quality of Italian and German Companies. *Sustainability*, *11*(17), 4612. https://doi.org/10.3390/su11174612

Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2013). Perceived Greenwashing: The Interactive Effects of Green Advertising and Corporate Environmental Performance on Consumer Reactions. *Journal of Business Ethics*, *125*(4), 693–707. https://doi.org/10.1007/s10551-013-1944-3

Pflugrath, G., Roebuck, P., & Simnett, R. (2011). Impact of Assurance and Assurer's Professional Affiliation on Financial Analysts' Assessment of Credibility of Corporate Social Responsibility Information. *AUDITING: A Journal of Practice & Theory*, *30*(3), 239–254. https://doi.org/10.2308/ajpt-10047

Ramirez, E. (2013). Consumer-defined sustainably-oriented firms and factors influencing adoption. *Journal of Business Research*, *66*(11), 2202–2209. https://doi.org/10.1016/j.jbusres.2012.01.012

Raucci, D., & Tarquinio, L. (2020). Sustainability Performance Indicators and Non-Financial Information Reporting. Evidence from the Italian Case. *Administrative Sciences*, *10*(1), 13. https://doi.org/10.3390/admsci10010013

World Business Council for Sustainable Development (WBCSD). (2018, February). *The Reporting Exchange: An overview of sustainability and corporate reporting in China*. https://www.wbcsd.org/contentwbc/download/4360/58764/1

Appendix

Table 1 - Dataset characteristics

Panel A: Number of firm observations per year, divided between U.S. and EU.

	2012	2013	2014	2015	2016	2017	2018	2019	Total
U.S.	645	635	637	637	637	639	657	656	5,143
EU	650	652	642	650	652	656	653	655	5,210
Total	1,295	1,287	1,279	1,287	1,289	1,295	1,310	1,311	10,353

Panel B: Number of firm-year observations per country

	U.S.	EU
Austria	-	103
Belgium	-	167
Cyprus	-	1
Czech Republic	-	32
Denmark	-	176
Finland	-	183
France	-	638
Germany	-	553
Greece	-	60
Hungary	-	24
Ireland	-	88
Italy	-	272
Luxembourg	-	25
Netherlands	-	216
Poland	-	117
Portugal	-	42
Spain	-	295
Sweden	-	342
United Kingdom	-	1,876
United States	5,143	-
Total	5,143	5,210

Table 1 presents basic charasteristics of the dataset. Panel A reports approxamately evenly distributed firm observations divided between U.S. and EU over the years 2012 to 2019. Panel B shows the division of firm observations over countries.

Table 2 - Summary of variables and statistics

Panel A: Definition of variables

Variable	Description	Data source
ESG-Score	CSR score based on self-reported activities in a firm's CSR report (TRESGS).	Asset 4
External Audit	Indicates whether the firm had their CSR report audited by an external auditor (CGVSDP030)	Asset 4
No Restatement	Indicates whether the firm had their earnings misstated and had to make a restatement of the financial report (ECSLDP052).	Asset 4
Reporting Quality	Combination of External Audit and No Restatement variables. The two variables are multiplied to get the value of Reporting Quality.	Constructed based on Asset 4
Voluntary regime	Indicates whether a firm is located in a country with a voluntary CSR reporting regime.	Fiechter et. al (2020)
U.S. / EU	Indicates whether the firm is located in U.S. or EU.	Asset 4
Post directive	Indicates whether the firm-year observation is before or after implementation of Directive 2014/95/EU. So firm year observations of 2018 and 2019 are post directive.	Constructed based on year.
Exposure	Indicates whether a firm is located in a EU country with voluntary CSR reporting before implementation of Directive 2014/95/EU.	Constructed based on Voluntary regime and U.S. / EU
Leverage	A firm's debt divided by total capital (WC08221).	Worldscope
Return on assets	Return on assets is a firm's net income divided by total assets (WC08326).	Worldscope
Log Employees	Log of number of employees in the firm (WC07011).	Worldscope
Log Total Assets	Log of sum of net total assets in EUR (WC02999).	Worldscope
Log Net Sales	Log of net sales or revenues in EUR (WC01001).	Worldscope

Panel B: Summary values of the variables used in the analysis

	Observations	Mean	St. dev.	Min	Max
ESG-Score	10,353	58.19	17.65	2.49	95.57
External Audit	10,353	0.36	0.48	-	1
No Restatement	10,353	0.97	0.15	-	1
Reporting Quality	10,353	0.35	0.48	-	1
Voluntary regime	10,353	0.64	0.48	-	1
U.S. / EU	10,353	0.50	0.50	-	1
Leverage	10,353	41.92	27.11	-	149.82
Return on assets	10,271	6.32	6.95	-15.32	30.91
Employees	10,332	33,917	59,403	38	362,000
Total Assets	10,353	42,900,000	139,000,000	273,315	1,080,000,000
Net Sales	10,352	11,500,000	21,800,000	103,663	134,000,000

Table 3 - Effect of reporting quality on ESG scores

Panel A: basic regression model to test effect of reporting quality on ESG scores			
	Coefficient	Std. Err.	p-value
Reporting quality	19.65	0.31	0.000**
Constant	51.30	0.18	0.000**
Year & firm fixed	no		
Observations	10,353		
R-squared	28.2%		

Panel B: regression model to test effect of reporting quality on ESG scores with control variables added			
	Coefficient	Std. Err.	p-value
Reporting quality	14.31	0.30	0.000**
Leverage	0.00	0.01	0.833
Return on assets	0.14	0.02	0.000**
Log Employees	1.20	0.14	0.000**
Log Assets	1.43	0.15	0.000**
Log Sales	2.01	0.23	0.000**
Constant	-12.07	1.66	0.000**
Year & firm fixed	no		
Observations	10,249		
R-squared	40.1%		

Panel C: regression model to test effect of reporting quality on ESG scores with control variables and fixed effects added			
	Coefficient	Std. Err.	p-value
Reporting quality	14.31	0.30	0.000**
Leverage	0.00	0.01	0.951
Return on assets	0.15	0.02	0.000**
Log Employees	1.24	0.14	0.000**
Log Assets	1.38	0.15	0.000**
Log Sales	1.98	0.23	0.000**
Constant	-13.47	1.66	0.000**
Year & firm fixed	yes		
Observations	10,249		
R-squared	42.3%		

Table 3 presents tests for the effect of reporting quality on ESG scores. Panel A is a basic regression model with reporting quality as the only independent variable. In Panel B a regression model with control variables added show similar result but higher R-square value. In Panel C year and firm fixed effects are added to the model. All variables are explained in section 4.1. Continuous variables are winsorized at 1% and 99%. * denotes significant at the 5% level, ** denotes significant at the 1% level.

Table 4 - Difference-in-difference test for the effect of reporting quality on ESG scores in voluntary and mandatory CSR regimes

Panel A: basic difference-in-difference model to test effect of reporting quality on ESG scores in voluntary and mandatory CSR regimes

	Coefficient	Std. Err.	p-value
Reporting quality	17.53	0.49	0.000**
Voluntary	-1.5	0.42	0.000**
Interaction	3.72	0.65	0.000**
Constant	52.43	0.36	0.000**
Year & firm fixed	no		
Observations	10,353		
R-squared	28.4%		

Panel B: regression model to test effect of reporting quality on ESG scores with control variables added

	Coefficient	Std. Err.	p-value
Reporting quality	9.33	0.48	0.000**
Voluntary	-6.32	0.39	0.000**
Interaction	5.75	0.59	0.000**
Leverage	0.01	0.01	0.188
Return on assets	0.15	0.02	0.000**
Log Employees	1.13	0.14	0.000**
Log Assets	1.60	0.15	0.000**
Log Sales	2.33	0.23	0.000**
Constant	-14.34	1.67	0.000**
Year & firm fixed	no		
Observations	10,249		
R-squared	42.0%		

Panel C: regression model to test effect of reporting quality on ESG scores with control variables and fixed effects added

	Coefficient	Std. Err.	p-value
Reporting quality	9.42	0.93	0.000**
Voluntary	-6.51	0.85	0.000**
Interaction	5.42	1.07	0.000**
Leverage	0.00	0.01	0.630
Return on assets	0.16	0.03	0.000**
Log Employees	1.15	0.32	0.000**
Log Assets	1.57	0.32	0.000**
Log Sales	2.33	0.50	0.000**
Constant	-16.11	3.72	0.000**
Year & firm fixed	yes		
Observations	10,249		
R-squared	43.8%		

Table 4 presents difference-in-difference tests for the effect of reporting quality on ESG scores in both mandatory and voluntary CSR regimes. Panel A is a basic regression model with reporting quality, voluntary and the interaction effect as the only independent variables. In Panel B, control variables are added to the model and show similar result but higher R-square value. In Panel C year and firm fixed effects are added to the model. All variables are explained in section 4.1 and Panel A of Table 2. Continuous variables are winsorized at 1% and 99%. * denotes significant at the 5% level, ** denotes significant at the 1% level.

Table 5 - Difference-in-difference test for the effect of Directive 2014/95/EU on ESG scores.

Panel A: basic difference-in-difference model to test effect of Directive 2014/95/EU on ESG scores

	Coefficient	Std. Err.	p-value
U.S. / EU	5.1	0.33	0.000**
Post directive	-7.97	0.47	0.000**
Interaction	2.1	0.67	0.000**
Constant	55.44	0.25	0.000**
Year & firm fixed	no		
Observations	10,353		
R-squared	11.7%		

Panel B: basic difference-in-difference model to test effect of Directive 2014/95/EU on ESG scores with control variables added

	Coefficient	Std. Err.	p-value
U.S. / EU	7.37	0.29	0.000**
Post directive	-5.65	0.40	0.000**
Interaction	12.25	0.58	0.000**
Leverage	0.01	0.01	0.007**
Return on assets	0.20	0.02	0.000**
Log Employees	1.05	0.15	0.000**
Log Assets	2.16	0.15	0.000**
Log Sales	2.98	0.27	0.000**
Constant	-36.51	1.72	0.000**
Year & firm fixed	no		
Observations	10,249		
R-squared	36.4%		

Panel C: basic difference-in-difference model to test effect of Directive 2014/95/EU on ESG scores with control variables and fixed effects added

	Coefficient	Std. Err.	p-value
Reporting quality	7.31	0.93	0.000**
Voluntary	-1.79	0.85	0.001**
Interaction	12.32	1.07	0.000**
Leverage	0.01	0.01	0.355
Return on assets	0.20	0.03	0.000**
Log Employees	1.11	0.32	0.002**
Log Assets	2.10	0.32	0.000**
Log Sales	2.92	0.50	0.000**
Constant	-37.99	3.72	0.000**
Year & firm fixed	yes		
Observations	10,249		
R-squared	38.2%		

Table 5 presents difference-in-difference tests for the effect of Directive 2014/95/EU on ESG scores by comparing scores in the U.S. and EU before and after implementation. Panel A is a basic regression model with U.S. / EU, Post directive and the interaction effect as the only independent variables. In Panel B, control variables are added to the model and show similar result but higher R-squared value. In Panel C year and firm fixed effects are added to the model. All variables are explained in section 4.1 and Panel A of Table 2. Continuous variables are winsorized at 1% and 99%. * denotes significant at the 5% level, ** denotes significant at the 1% level.

Table 6 - Difference-in-difference test for the effect of Directive 2014/95/EU on ESG scores by comparing firms within the EU.

Panel A: basic difference-in-difference model to test effect of Directive 2014/95/EU on ESG scores

	Coefficient	Std. Err.	p-value
Exposure	0.2	0.53	0.709
Post directive	1.07	0.66	0.105
Interaction	3.07	1.06	0.004**
Constant	61.08	0.33	0.000**
Year & firm fixed	no		
Observations	5,210		
R-squared	0.6%		

Panel B: basic difference-in-difference model to test effect of Directive 2014/95/EU on ESG scores with control variables added

	Coefficient	Std. Err.	p-value
Exposure	-3.19	0.45	0.000**
Post directive	0.21	0.54	0.701
Interaction	3.39	0.87	0.000**
Leverage	0.01	0.01	0.432
Return on assets	0.20	0.03	0.000**
Log Employees	1.33	0.19	0.000**
Log Assets	2.78	0.19	0.000**
Log Sales	1.85	0.30	0.000**
Constant	-22.67	2.03	0.000**
Year & firm fixed	no		
Observations	5,133		
R-squared	33.5%		

Panel C: basic difference-in-difference model to test effect of Directive 2014/95/EU on ESG scores with control variables and fixed effects added

	Coefficient	Std. Err.	p-value
Reporting quality	-3.17	1.00	0.002**
Voluntary	3.27	0.55	0.000**
Interaction	3.39	0.80	0.000**
Leverage	0.01	0.02	0.681
Return on assets	0.19	0.05	0.000**
Log Employees	1.33	0.52	0.011*
Log Assets	2.71	0.45	0.000**
Log Sales	1.88	0.70	0.007**
Constant	-24.36	4.48	0.000**
Year & firm fixed	yes		
Observations	5,133		
R-squared	34.8%		

Table 6 presents difference-in-difference tests for the effect of Directive 2014/95/EU on ESG scores by comparing firms within the EU with high/low exposure to the Directive. Panel A is a basic regression model with Exposure, Post directive and the interaction effect as the only independent variables. In Panel B, control variables are added to the model and show similar result but higher R-squared value. In Panel C year and firm fixed effects are added to the model. All variables are explained in section 4.1 and Panel A of table 2. Continuous variables are winsorized at 1% and 99%. * denotes significant at the 5% level, ** denotes significant at the 1% level.

Table 7 - OLS regression of main variables / robustness check

Panel A: OLS regression of main variables

	Coefficient	Std. Err.	p-value
Reporting quality	12.72	0.33	0.000**
Voluntary	-3.88	0.3	0.000**
Leverage	0.01	0.01	0.199
Return on assets	0.15	0.02	0.000**
Log Employees	1.12	0.14	0.000**
Log Assets	1.56	0.15	0.000**
Log Sales	2.32	0.23	0.000**
Constant	-15.23	1.66	0.000**
Year & firm fixed	no		
Observations	10,249		
R-squared	41.4%		

Panel B: OLS regression with rubust standard errors

	Coefficient	Std. Err.	p-value
Reporting quality	12.72	0.31	0.000**
Voluntary	-3.88	0.28	0.000**
Leverage	0.01	0.01	0.221
Return on assets	0.15	0.02	0.000**
Log Employees	1.12	0.14	0.000**
Log Assets	1.56	0.15	0.000**
Log Sales	2.32	0.23	0.000**
Constant	-15.23	1.65	0.000**
Year & firm fixed	no		
Observations	10,249		
R-squared	41.5%		

Panel C: OLS regression with clustured standard errors

	Coefficient	Std. Err.	p-value
Reporting quality	12.72	0.66	0.000**
Voluntary	-3.88	0.61	0.000**
Leverage	0.01	0.01	0.579
Return on assets	0.15	0.04	0.000**
Log Employees	1.12	0.33	0.001**
Log Assets	1.56	0.33	0.000**
Log Sales	2.32	0.51	0.000**
Constant	-15.23	3.73	0.000**
Year & firm fixed	no		
Observations	10,249		
R-squared	41.5%		

Table 7 presents Ordinary Least Squares (OLS) tests for robustness of variables. Panel A is a basic OLS model with Exposure. In Panel B the same OLS model is used but with robust standard errors. In Panel C the standard errors are adjusted for clusters. In all models, the reporting quality variable stays intact as significant predictor of ESG scores. All variables are explained in section 4.1 and Panel A of Table 2. Continuous variables are winsorized at 1% and 99%. * denotes significant at the 5% level, ** denotes significant at the 1% level.

Table 8 - Calculation of variation inflation factors (VIFs) to test for mulicollinearity.

Panel A: VIFs	
	VIF
Reporting quality	1.37
Voluntary	1.20
Leverage	1.09
Return on assets	1.13
Log Employees	3.47
Log Assets	3.22
Log Sales	6.54
Mean VIF	2.58

Table 8 presents VIF values for multicollinearity between variables.