Master thesis

Mandatory CSR disclosure in Europe and its effect on firm value

Erasmus University Rotterdam - Erasmus School of Economics

Master thesis program:	Accounting and Control
Name:	Mikayla Marisja Brakus
Student ID number:	579251
Supervisor:	M. Erkens
Second assessor:	

Abstract

In this thesis the effect of mandatory CSR disclosure on firm value in Europe will be tested. A relationship between mandatory CSR disclosure and firm value is expected, based on the growing importance of corporate social responsibility. By disclosing non-financial information, competitive advantages can be created by companies by distinguishing themselves by having a positive CSR report (Malik, 2015; Orlitzky, Schmidt, & Rynes, 2003). However, the possibility of overinvestment in CSR policy increases when managers want to benefit from having a good reputation as being a good global citizen (Barnea & Rubin, 2010). When the company overinvests in CSR policy, dividends will decrease as well as the firm value (Barnea & Rubin, 2010). Earlier research done found that investors expect the costs of the regulation to be higher than the benefits (Grewal, Riedl, & Serafeim, 2019). Moreover, shareholders see CSR activities as an expense that is attributed to them. Therefore, firm value based of shareholders perception on CSR activities that are mandatory disclosed decreases (Friedman, 2007). This thesis is done by carrying out a difference-in-difference analysis around the in force coming of Directive 2014/95/EU. The results of the difference-in-differences analysis came back insignificant, which means that the mandatory CSR disclosure did not affect firm value for European companies. The first possible explanation for a not significant result is that the announcement of Directive 2014/95/EU in 2014 (Official Journal of the European Union, 2014), may have already caused companies and shareholders to react to mandatory CSR disclosure. The second possible explanation for a not significant result is based on the tension between different earlier research done about the impact of CSR disclosures on firm value (Hassel, Nilsson, & Nyquist, 2011; Hu, Chen, Shao, & Gao, 2018). A possible answer to an insignificant result in the main empirical analysis can be due to the fact that shareholders did not base firm value of European companies on mandatory CSR disclosures on average.

Key words: Mandatory disclosure, CSR disclosure, Directive 2014/EU/95, Firm value.

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1. Introduction

In the year 2014, Directive 2014/95/EU was introduced for large companies in Europe to disclose non-financial information in their annual reports. These large companies within the European Union include public-interest companies that have on average 500 employees in the fiscal year (Official Journal of the European Union, 2014). The in force coming of Directive 2014/95/EU was on the first of January 2017. Important is to see how this new regulation affects the firm value of listed European companies. To test this relationship the following main research question is stated for this thesis: *Does mandatory CSR disclosure in the European Union affect firm value?*

A relationship between mandatory CSR disclosure and firm value is expected, based on the growing importance of corporate social responsibility. CSR disclosure can help mitigate conflicting interests between investing and non-investing stakeholders (Buchanan, Cao, & Chen, 2018). Moreover, the disclosure of non-financial information can not only secure existing talent by giving non-investing stakeholders extra information about the ethics of the company, but it can as well attract new talent by showing the fulfilment of the company's environmental duties. By attracting new talent, quality of the services or products of the company can be improved, and company strategies can be improved, and firm value will increase (Chen & Lee, 2016). By disclosing non-financial information, competitive advantages can be created by companies by distinguishing themselves by having a positive CSR report (Malik, 2015; Orlitzky, Schmidt, & Rynes, 2003). However, the possibility of overinvestment in CSR policy increases when managers want to benefit from having a good reputation as being a good global citizen (Barnea & Rubin, 2010). When the company overinvests in CSR policy, dividends will decrease as well as the firm value (Barnea & Rubin, 2010).

Earlier research shows different perspectives and outcomes on the relationship between mandatory CSR disclosure and firm value. Grewal, Riedl and Serafeim (2019) describe a negative relation between mandatory CSR disclosure and firm value. Grewal, Riedl and Serafeim (2019) describe the fact that companies that did not make optimal disclosure discissions prior to mandatory CSR disclosure, will experience more costs for introducing a mandatory CSR disclosure and these costs will exceed the benefits. This effect can also work out the other way when investors expect companies to make suboptimal disclosure decisions prior to the new regulation (Grewal et al., 2019). Furthermore, investors already anticipate stricter future regulation, which brings a lot of costs (Grewal et al., 2019).
In contrast to the to the findings of Grewal, Riedl and Serafeim (2019), Loannis and Serafeim (2017) and Deng, Kang and Low (2013) describe a positive relation between mandatory CSR disclosure and firm value. For example, Loannis and Serafeim (2017) indicate a positive relation between mandatory ESG disclosure and firm value due to the fact that tested companies that experience mandatory non-

financial disclosure try to exceed their investors' expectations, by showing their commitment and willingness to be responsible companies (Loannis & Serafeim, 2017)
To give more clarity about this subject, this thesis is conducted. Furthermore, this thesis can bring more clarity about how new CSR related regulation affects companies. This can be helpful for governments without similar regulations, to help them to get insight in how new regulations about CSR disclosure will affect companies in their countries.

To answer the main research question of this thesis, a difference-in-differences analysis is used. To determine the effect of Directive 2014/95/EU the difference in firm value is detected between the treatment and control group of this thesis and if this difference is attributable to Directive 2014/95/EU. The sample of this thesis consist out of European listed companies with more than 500 employees on average in a business year and these companies were at least active in the period 2013 till 2019. This research sample is divided into a treatment group and a control group. The companies selected for the treatment group did not disclose a voluntarily CSR report in their annual report before the year 2017. The companies selected for the control group disclosed voluntarily a CSR report before the in force coming of Directive 2014/95/EU in 2017. By having two separate groups the results of the treatment group that underwent treatment can be compared to the results of the control group that did not underwent treatment (Callaway & Sant'Anna, 2021). In this way it can be determined if the results and possible differences between the groups are attributable to the event that happened and the treatment that came from the event happening.
The results of the difference-in-differences analysis came back insignificant. Which means that Directive 2014/95/EU did not affect the firm value of listed European companies. Specifically, to answer the main research question, mandatory CSR disclosure does not affect firm value of European listed companies. The reasoning behind the insignificant relation between mandatory CSR disclosure and firm value is first that companies and shareholders could have already reacted when Directive 2014/95/EU was announced (Grewal, Riedl, & Serafeim, 2019). In this case the predicted negative effect on firm value could already have taken place when Directive 2014/95/EU was announced. Which means that investors already anticipated the effect of in force coming of Directive 2014/95/EU at the announcement of the directive. Furthermore, in earlier research done there is tension between how much firm value is attached to CSR disclosures by shareholders (Hassel, Nilsson, & Nyquist, 2011; Hu, Chen, Shao, & Gao, 2018). Hassel, Nilsson and Nyquist (2011) found a negative relationship between environmental information and market value of Swedish firms. explanation for this outcome is due to the fact that CSR related activities are costly and therefore have a negative impact on the costs and market value of the company (Hassel, Nilsson, & Nyquist, 2011). Hu, Chen, Shao and Goa (2018) have investigated the relationship between firm value and CSR in China. The outcome of this research is that CSR can improve firm value, ceteris paribus. Because of this tension and the uncertainty if and how shareholders attach firm value to CSR disclosures, there is a chance

that in 2017 shareholders on average did not base firm value on the CSR reports of a European company. Therefore, there is no effect founded when researching if mandatory CSR disclosure affects firm value.

This thesis contributes to the existing knowledge by giving an answer to the tension in this research field discussed in the theoretical background. This is done by measuring the effect of in force coming of mandatory CSR disclosure on firm value in Europe. These results indicate a different type of view on the question if mandatory CSR disclosure impacts firm value than other existing research about this topic. Therefore, these results can bring extra information to countries without a similar regulation. Nevertheless, at the same time it can bring extra information to the EU about which effect the in force coming of Directive 2014/95/EU had on European listed companies.

2. Theoretical background and hypotheses development

In this chapter the theoretical background of the subject: *mandatory CSR disclosure and firm value*, will be discussed. The research question belonging to this subject is: *Does mandatory CSR disclosure in the European Union affect firm value?*

To create more clarity about the subject of this thesis and the research question, the following theoretical aspects will be covered. First, the term *Corporate Social Responsibility (CSR)* will be explained. Secondly, the importance of CSR disclosure will be covered. Thirdly, the term *disclosure quality* will be explained. Furthermore, the Directive 2014/95/EU will be covered and explained. Lastly, the hypothesis development will be covered.

2.1 Corporate Social Responsibility

Corporate Social Responsibility (CSR) and firm value can be linked in different ways. To better understand this relationship the term Corporate Social Responsibility (CSR) should be clear.

A lot of different definitions for CSR are available. According to McWilliams and Siegel (2001) CSR concerns the actions beyond the main interest of the firm and beyond what is required by law. These actions develop some social good. This is a broad and universal definition of CSR. Contrary to this, Van Marrewijk (2003) indicates that CSR does not have one definition. Various and more company specific definitions of CSR should be accepted. Lux and Orre (2010) acknowledge the fact that there are different definitions for CSR, however they describe CSR as actions that companies undertake voluntary and these actions are beyond the minimum legal requirements that apply to the company. Furthermore, they mention that CSR includes the concepts: people, planet and profit. This explanation of CSR from Lux and Orre (2010) is comparable to the explanation of McWilliams and Siegel (2001). They only acknowledge the fact that there is not one specific definition of the term CSR, and they are more specific about the three different concepts CSR focusses on. Therefore, the definition of CSR from Lux and Orre (2010) adds more information to the definition of CSR from McWilliams and Siegel (2001).
In conclusion, CSR concerns the fact that companies should take responsibility for the activities of the company that effect the interest of the whole society (Lux & Orre, 2010). In this thesis the definition of CSR from Lux and Orre (2010) is used.

Environmental, Social & Governance (ESG) is also a commonly used term to indicate sustainability. ESG is a broader term than CSR. This is because, CSR indirectly includes governance issues and ESG explicitly includes governance (Gillan, Koch, & Starks, 2021). Governance issues relate to the board of the company and how they manage the company. ESG focusses on integrating economic, social and

governance aspects in the business model of the company and CSR is more focussed on the activities they perform in context of being economically responsible (Gillan, Koch, & Starks, 2021). In this study the two terms are interchangeable, because the difference between the terms in this study is negligible.

2.2 Importance of CSR disclosure

CSR disclosure is part of non-financial disclosure (Songini, Pistoni, Baret, & Kunc, 2020). Non-financial disclosure enhances information about companies and their business operations that is not directly reported in the financial report of the company.

For reaching a sustainable global economy, disclosure of non-financial information is needed. Non-financial disclosure will help manage, monitor and measure the activities of the organisations and the impact of those activities on society. This is important for the stakeholders of the companies concerned because of comparability purposes. They can compare the different companies not only based on the financial information but also based on non-financial information. Moreover, through disclosure of this non-financial information, the information is more accessible to the stakeholders (Official Journal of the European Union, 2014).

There is a growing interest in non-financial information by the market (Eccles, Serafeim, & Krzus, 2011). Managers recognize the importance of non-financial disclosure. They see it as a way to describe intangibles and to show which part of the value-creation process and corporate strategy is due to these intangibles (Arvidsson, 2011). Furthermore, analyst also take advantage of the provided CSR reports by companies. By using the CSR reports of companies, the forecast error is lower than when there is no CSR report disclosed (Dhaliwal, Radhakrishnan, Tsang, & Yang, 2012). Which suggest that CSR reports bring new information to the outside world. This is important information for the stakeholders of the company. This can lead to more transparency towards stakeholders and therefore a reduction in capital constraints (Cheng, Loannou, & Serafeim, 2014; European Commission, 2017). According to the European Commission (2017), more transparent companies in the field of CSR, will attract employees with a lot of talent, perform better and be more successful overall. Critics of non-financial information disclosure are concerned about a couple of aspects of the reliability and comparability of non-financial disclosure (Songini, Pistoni, Baret, & Kunc, 2020). Communication and measurement of non-financial information is more difficult. There is less standardisation and harmonization in these types of reports (Songini, Pistoni, Baret, & Kunc, 2020). However, even if there are critical aspects of non-financial reporting, this does not take away the fact that non-financial information brings out new and important information for stakeholders of companies and for society. Furthermore, the European Commission did adopt guidelines concerning the disclosure of CSR related

topics in Directive 2014/95 (European Commission, 2017; Official Journal of the European Union, 2014). This means that because of the guidelines the reports become more reliable and comparable. In conclusion, it will be profitable for both stakeholders as well as for the company itself to have a CSR disclosure in their annual report.

2.3 Disclosure quality

This part of the theoretical background of this thesis is to clarify the importance of the control variable *Disclosure quality (ESG-Score)* for this research. Furthermore, how the disclosure quality of a CSR disclosure influences the firm value.

Often companies do not make the choice to disclose negative CSR information, but companies can take in consideration the option of greenwashing (this is beyond the scope of this thesis), or they decide not to disclose CSR information. Greenwashing concerns a form of publishing not reliable information about CSR related subjects that is published. Greenwashing is managing and ensuring the company's reputation and is used to hide deviance (Laufer, 2003). Directive 2014/95/EU gives topics given that the designated companies need to include in their mandatory CSR disclosure. This is further explained on pages 10 and 11. In this directive is stated, that if a company does not undertake any actions in one of the specified areas, they need to report this and explain why they do not take any actions in this area of CSR (Official Journal of the European Union, 2014). In these cases, companies can greenwash. As spoken about before, the European Commission adopted guidelines concerning the disclosure of CSR related topics (European Commission, 2017; Official Journal of the European Union, 2014). In these guidelines is specified that products and services need to be mentioned that can have a negative impact on the specified areas of CSR (Official Journal of the European Union, 2014).

The level of quality of a disclosure is depending on how much information it contains (Scaltrito, 2015). Based on this information, investors partially determine firm value and therefore influence stock prices. Influencing the quality of disclosures can be done in various ways. As mentioned before influencing CSR related non-financial disclosures can be done by greenwashing, but when influencing the non-financial disclosure also the information in the disclosure will be influenced. This information influences the thoughts and opinions of stakeholders. Positive disclosure quality is positively related to firm value (Plumlee, Brown, Hayes, & Marshall, 2013). This means that the quality of a non-financial disclosure influences firm value.

The quality of non-financial disclosures is harder to determine. Non-financial disclosures can be based on Key Performance Indicators (KPI's) (Zarzycka & Krasodomska, 2021). However, these KPI's are related to the topics concerning the non-financial information, such as customer satisfaction and

pollution. These topics are harder to measure than KPI's related to the financial numbers of a company.

Gao, Dong, Ni and Fu (2016) researched the economic consequences of the quality of non-financial disclosures. They found that companies with a better CSR performance, companies that have a stronger corporate governance and companies that have more external financing needs than on average, provide CSR disclosures with higher quality information. These higher quality CSR disclosures have a positive effect on the stock liquidity, analyst coverage and Search Engine Optimalization.
Therefore, there can be concluded that the quality of non-financial disclosures is an important determinant for firm value. In conclusion, the quality of a CSR disclosure is one of the most important control variables in this thesis.

2.4 Directive 2014/95/EU

In the year 2014, Directive 2014/95/EU was introduced for large companies in Europe to disclose non-financial information in their annual reports. These larger companies within the European Union include public-interest companies that have on average 500 employees in the fiscal year (Official Journal of the European Union, 2014). These companies fall into the following categories (European Commission, n.d., Companies that must comply):

- Banks
- Insurance companies
- Listed companies
- Other companies that are designated by the national authorities as public-interest entities

Consolidated companies of public interest are as well covered in this regulation. Parent companies of a consolidation should include a consolidated non-financial disclosure, if they had on average 500 employees in the specific fiscal year (Official Journal of the European Union, 2014). Only if the parent company is as well a subsidiary of another company, the company can be exempted from a consolidated non-financial disclosure. This is only the case if overall parent company already took the company and its subsidiaries into account in its consolidated non-financial disclosure (Official Journal of the European Union, 2014).

Directive 2014/95/EU came into force on 1 January 2017. Directive 2014/95/EU makes it mandatory for all companies that fall into these categories named above, to disclose about the facts named below (Official Journal of the European Union, 2014). The first annual reports with the mandatory non-financial disclosure were the annual reports of 2017. Nevertheless, companies could already anticipate and react after the announcement of Directive 2014/95/EU in 2014.

The non-financial information that is mandatory to disclose, largely concerns CSR subjects such as (European Commission, n.d., Information to be disclosed):

- Environmental protection
- Respect for human rights
- Social responsibility
- Treatment of employees

Companies that need to disclose because of Directive 2014/95/EU, also need to disclose about diversity in members of the company's board of directors and bribery and anti-corruption (European Commission, n.d.). Furthermore, in the mandatory non-financial report, the company should include a paragraph about the due diligence process of the company (Official Journal of the European Union, 2014).

A company should not only show the positive effects they create with their CSR policy, but they should as well report the important risks that can have effect on the society and the effects that have already taken place (Official Journal of the European Union, 2014).

Companies that already voluntary disclosed CSR-reports in their annual report before it became mandatory, do still need to comply to the norms Directive 2014/95/EU, if they belong to one of the designated groups named above. Member states of the European Union are responsible for enforcing compliance with Directive 2014/95/EU (Official Journal of the European Union, 2014). Which means that companies that do not comply with Directive 2014/95/EU when they have to, will be held responsible following the national procedures of the country of origin (Official Journal of the European Union, 2014). If a company does not belong to one of the groups designated by Directive 2014/95/EU, they are not obligated to publish a CSR-report and if they publish a CSR-report they do not have to comply to the norms of the Directive 2014/95/EU.

2.5 Hypotheses development

CSR is a largely discussed topic in society. Because of the growing awareness of corporate social responsibility, the demand for non-financial information equally increases by stakeholders. A relationship between mandatory CSR disclosure and firm value is expected, based on the growing importance of corporate social responsibility. By disclosing a CSR report, the demand for knowledge about the non-financial figures is answered and firm value can be determined based on both financial and non-financial information.

CSR disclosure can help mitigate conflicting interests between investing and non-investing stakeholders (Buchanan, Cao, & Chen, 2018). This is done as described on page 8, by giving stakeholders of the company extra non-financial information by providing a CSR disclosure. This non-

financial information can be especially important to non-investing stakeholders since their main goal for the company is not increasing dividend. Non-financial information can give employees (non-investing stakeholders) an idea about the type of company they are working for and if the policies of the company are in line with their own believes. Moreover, the disclosure of non-financial information can attract new talent by showing the fulfilment of the company's environmental duties. By attracting new talent, quality of the services or products of the company can be improved, and company strategies can be improved (Chen & Lee, 2016). Furthermore, non-financial information can attract new potential investors because they will have more information to base investment decisions on. Especially when the disclosure adds positive information to the company's annual report. This can create competitive advantages by distinguishing themselves by having a positive CSR report (Malik, 2015; Orlitzky, Schmidt, & Rynes, 2003). However, the possibility of overinvestment in CSR policy increases when managers want to benefit from having a good reputation as being a good global citizen (Barnea & Rubin, 2010). When the company overinvests in CSR policy, dividends will decrease. Therefore, investing shareholders may see this as a less attractive investment possibility (Barnea & Rubin, 2010). In conclusion, CSR reports can increase and decrease the firm value of a company depending on the CSR policy of the company and the reported costs of CSR. Based on the CSR policy competitive advantages can be created by attracting new talent. Therefore, making CSR disclosure mandatory, companies that do not have a voluntary CSR disclosure, will report new information towards their stakeholders and based on this new information the firm value of the company will decrease or increase. By making CSR reporting mandatory, CSR awareness and CSR disclosures can even be brought to the attention more. Which can even result in little changes in firm value of companies that already disclose CSR reports voluntarily.

The link between CSR and firm value is studied in different ways. Mainly a lot of research is done about the relationship between CSR policy and firm value. In this area of the relationship between CSR and firm value, there is evidence that CSR policy does affect the firm value of a company (El Ghoul, Guedhami, Kwok, & Mishra, 2011; Hu, Chen, Shao, & Gao, 2018). However there are some studies that indicate that on average there is no effect of CSR policy on firm value (Ding, Ferreira, & Wongchoti, 2016). This already indicates that there are a lot of different perspectives and results in the field of CSR and firm value.

Nevertheless, the question is raised whether mandatory CSR disclosure will have impact on firm value. In this area of the relationship between CSR and firm value, the aspect "disclosure" is investigated and not the aspect "policy". Disclosure includes what companies communicate to the outside world and policy is what companies actually implement.

Earlier research about the relationship between CSR and firm value, indicates a reaction of mandatory CSR disclosure on firm value. Grewal, Riedl and Serafeim (2019) found a negative market reaction after non-financial disclosure became mandatory. This indicates that the firm value of the companies studied in Europe overall decreased after introduction of mandatory non-financial disclosures. This is due to the fact that investors expect companies to make optimal disclosure decisions prior to the new regulation. These companies that were affected by the introduction of this new regulation will experience more costs for disclosing the mandatory non-financial information and these costs will exceed the benefits of reporting non-financial information (Grewal, Riedl, & Serafeim, 2019). This effect can also work out the other way when investors expect companies to make suboptimal disclosure decisions prior to the new regulation (Grewal et al., 2019). Furthermore, investors already anticipate stricter future regulation, which brings a lot of costs (Grewal et al., 2019). Moreover, to add to the information given by Grewal et al. (2019), Friedman (2007) stated that shareholders think CSR activities are at the costs of them. This concept is called "shareholders expensive view". Because of this concept, after reporting CSR activities firm value can decrease. In the first place, based on the view of Grewal, Riedl and Serafeim (2019) a reaction is expected between mandatory CSR disclosure and firm value in Europe.
However, there is also still uncertainty in the research field of mandatory CSR disclosure and firm value. For example, Loannis and Serafeim (2017) indicate a positive relation between mandatory ESG disclosure and firm value. Loannis and Serafeim (2017) investigated the mandating of the disclosure of ESG information in China, Denmark, Malaysia and South Africa. They conclude that mandatory ESG disclosure in the countries of their sample, indicates an increase in the Tobin's Q (measure of firm value) in the firms of the investigated countries. This positive effect is due to the fact that tested companies that experience mandatory non-financial disclosure try to exceed their investors' expectations, by showing their commitment and willingness to be responsible companies (Loannis & Serafeim, 2017)

The uncertainty in accounting research about the effect of mandatory CSR disclosure on firm value in combination with the fact t hat there is a lack of research about the overall effect of the Directive 2014/95/EU on the firm value of European firms, leads to the following main research question of this study:

Does mandatory CSR disclosure in Europe affect the firm value of European firms?

To answer this main research question, the following hypothesis is formulated:

Hypothesis 1:
H0: Mandatory CSR disclosure in Europe does not affect firm value

H1: Mandatory CSR disclosure in Europe affects firm value

3. Research design

In this chapter the research design of this thesis will be covered. First, the theoretical relations will be covered. Secondly, the theoretical relations will be explained. Thirdly, the control variables of this thesis will be covered. Furthermore, the tested model will be clarified. Lastly, the research sample and data will be covered.

By clarifying the points named above, a clear view is given on the way of retrieving an answer on the main research question of this thesis: *Does mandatory CSR disclosure in the European Union affect firm value?*

3.1 Theoretical relations

The independent and dependent variable need to be determined in this study. The dependent variable is *Firm value*, and the independent variable is *Mandatory CSR disclosure*, based on the main research question of this thesis: *Does mandatory CSR disclosure in the European Union affect firm value?*

3.1.1 Dependent variable

Different types of proxies can be used to express firm value. Mittelbach-Hörmanseder, Hummel and Rammerstorfer (2021) used stock prices to express firm value. Barth, Cahen, Chen and Venter (2017) made use of the future cash flows and a discount rate to calculate the firm value. However, another often used proxy for firm value in similar research is the Tobin's Q (Chen & Lee, 2016; Hu, Chen, Shao, & Gao, 2018; Ding, Ferreira, & Wongchoti, 2016; Barth, Cahan, Chen, & Venter, 2017). To determine the firm value, the Tobin's Q is used in this research. Tobin's Q is a well-known measure for firm value. Tobin's Q is measured as the ratio between the market value of the firm and the replacement costs of the assets (Tobin & Brainard, 1976; Fu, Singhal, & Parkash, 2016).
The standard calculation of the Tobin's Q is as follows:

$$\text{Tobin's Q} = \frac{Market\ value\ equity + Market\ value\ liabilities}{Book\ value\ equity + Book\ value\ liabilities}$$

Or:

$$\text{Tobin's Q} = \frac{Market\ value\ equity + Book\ value\ liabilities}{Book\ value\ equity + Book\ value\ liabilities}$$

Data from Orbis can be extracted to calculate the Tobin's Q for the selected treatment and control group. The data extracted for the calculation of the Tobin's Q are *Market capitalization*, *total liabilities* and *total assets*. Market capitalization is the total market value of outstanding shares, therefore gives the market value of equity. Total assets represents the sum of the book value of equity and the book value of total liabilities (Chen & Lee, 2016).

3.1.2 Independent variable

Mandatory CSR disclosure can be operationalized by using a dummy variable. A dummy variable is a variable that is dichotomous (Hardy, 1993), which means that the variable can only contain two values. This variable contains 0 in de period before Directive 2014/95/EU became active and contains 1 in the period after Directive 2014/95/EU became active.

3.2 Control variables

By controlling for different variables, there would not be as much noise in the determination of the relationship between the dependent and independent variable.

One of the most important control variables is the CSR disclosure quality. If the CSR disclosure of a company is clear and contains valuable information for the stakeholders, the firm value will be more effected by it. For measuring this control variable, the ESG Disclose Score of DataStream/Eikon will be used.

Another control variable in this thesis is *firm size* (Hu et al, 2018). Because the control group and treatment group cannot be exactly the same size, there should be controlled for firm size. The same is the case for firm age and profitability of the researched companies (Hu, Chen, Shao, & Gao, 2018). For the firm size aspect of this thesis the number of employees is used as an operationalization of the variable firm size and total assets is as well used as a proxy for firm size. The number of employees is used because the number of employees is an important concept in this thesis. European companies with over 500 employees are selected for this research. This means that there are companies selected that have 500 employees and companies with over one hundred thousand employees. To mitigate this difference between the selected companies the control variable *number of employees* is used. Furthermore, the control variable *total assets* is used to mitigate the overall size effects between the selected companies for this research (Ding, Ferreira, & Wongchoti, 2016; Hu et al, 2018).

The next control variable is *firm age* (Hu et al, 2018). For the firm age aspect of this research, companies that already were incorporated at least before 2013 are selected, because they experienced the introduction of mandatory CSR disclosure in 2017 when they were already fully active.

The fourth control variable is *profitability* (Hu et al, 2018). The control variable *Return on Assets (ROA)* is used to mitigate differences in profitability because of operational improvement between the companies selected for this research (Ding, Ferreira, & Wongchoti, 2016).

The fifth control variable is *debt ratio* or in other words the ratio between total liabilities and total assets (a form of leverage). Chen and Lee stated that you should control the debt ratio, because firms with high debt ratios have less to invest in CSR (Chen & Lee, 2016). There is as well a possibility that

firm value decreases or increases due to the fact that the ratio between total liabilities and total assets changes (Ding, Ferreira, & Wongchoti, 2016).
Moreover, *research and development (R&D)* is a control variable based on the fact that R&D can bring extra value to the firm, because of future benefits (Ding, Ferreira, & Wongchoti, 2016). This can cause noise in the relationship between mandatory CSR disclosure and firm value. To operationalize the control variable R&D, the R&D expenses of a selected company are divided by total assets. The control variable *Capital Expenditures (CAPEX)* is also mentioned in similar research done (Chen & Lee, 2016). The control variable CAPEX is part of the control variable R&D. This variable represents the value of development. Capital expenditures can bring future benefits to the firm, but it can also not bring future benefits to the firm (Chen & Lee, 2016). In this thesis the variable R&D expenses will be used to reflect the expenditures that can bring benefits to the firm now and in the future.

3.3 Tested model

3.3.1 Difference-in-differences model

This research concerns an event study. The event of coming in force of Directive 2014/95/EU will be studied. Specifically, the event of CSR disclosure becoming mandatory will be researched and its effect on firm value. For carrying out this research a difference-in-differences model is used. By using a difference-in-differences model, the variable of interest will be evaluated for the research sample before and after an event happening. Hence, another name for a difference-in-differences model is the before-after model (Lee, 2016). These results can be separated into two groups. The treatment group and the control group. The treatment group is a sample that undergoes treatment. This means that this treatment group does experience an extra effect arising from the event happening. The control group is the sample that does not undergoes treatment and does not experience an extra effect from the event that takes place (Lee, 2016; Callaway & Sant'Anna, 2021). By having two separate groups the results of the treatment group that underwent treatment can be compared to the results of the control group that did not underwent treatment (Callaway & Sant'Anna, 2021). In this way it can be determined if the results and possible differences between the groups are attributable to the event that happened and the treatment that came from the event happening. Specifically, a causal relationship can be determined by comparing results before and after the event that took place (Lee, 2016).
Combining the aspect *Time* and the aspect *Treatment* of a differences-in-differences model, the following standard linear equation can be made:

$$Y = \beta 0 + \beta 1 * \text{Treatment} + \beta 2 * \text{Post} + \beta 3 * \text{Treatment} * \text{Post} + \varepsilon$$

Whereby *Post* indicates the period before or after the event and *Treatment* indicates if the object of interest underwent treatment or not. Furthermore, $\beta 3$ indicates the difference-in-differences coefficient, whereby the *Treatment* and *Time* aspect are combined.

Ideally, the period of the event happening and determining the before and after results of this event happening, is short. This is because, if this takes a longer time other factors may influence the causal relationship between the event happenings and the variable of interest that should be influenced by the event (Lee, 2016). An important assumption made while executing a difference-in-differences analysis, is the parallel assumption. The parallel assumption means that when the event studied does not happen, the outcomes of the variable of interest of the control group and treatment group somewhat follow parallel paths over time (Callaway & Sant'Anna, 2021).

3.3.2 Difference-in-differences for in force coming Directive 2014/95/EU

It can be the case that an event study features more than one time period due to different shocks happening around the same event. In this research the first shock happening is when the new regulation was announced. It can be that after the announcement companies already adjusted their annual report structure and added CSR reporting. The second shock is the date that the regulation came into force. The announcement took place in 2014 and the regulation came into force in 2017. This thesis will focus on the shock of the regulation coming into force in 2017. Therefore, only companies with no ESG Disclosure Scores available in the years before 2017 and which were active from the year 2013 till at least 2019, will be taken into account for the treatment group of this research.

The control group cannot differ too much from the treatment group. The companies selected concern listed European companies with over 500 employees and these companies were at least active in the period 2013 to 2019. However, for the control group companies are selected that already disclosed voluntarily a CSR report before in force coming of Directive 2019/95/EU in 2017. The companies that already voluntarily disclosed a CSR report already have ESG-scores before 2017. Only companies are selected for the treatment and control group who are obligated to follow Directive 2014/95/EU. There will still be differences between the companies in the control group as well as in the treatment group. To control for these differences, the control variables covered on page 15 are used.

With use of the differences-in-differences model, the real effect of in force coming of Directive 2014/95/EU on firm value can be determined. For the difference-in-differences model the firm value is evaluated before and after Directive 2014/95/EU came into force. This means that the firm value based on end of year numbers of 2016 and the firm value based on end of year data of 2017 are looked at. The control group and the treatment group of this difference-in-differences research undergo the same

shock in time, only the selected control group does not experience the shock the same way as the treatment group. The control group does not have to make a significant difference to their annual reports by adding a mandatory CSR report. The treatment group does need to make a significant change to their annual report by adding a mandatory CSR report. Therefore, the treatment group underwent treatment (adding a CSR report to their annual report) and the control group did not undergo treatment in the same time period. The treatment aspect of the difference-in-differences analysis can be indicated by adding a dummy variable "Treated" and giving this variable the value "1" when treated and "0" when not treated. By comparing the firm value of the control group with the firm value of the treatment group, pre and post the treatment in 2017, the change in firm value derived from mandatorily adding a CSR report to the annual report can be determined. The time aspect of the differences-in-differences analysis can also be indicated by a dummy variable "Time". This variable is "1" in the period after the event happening and "0" in the period before the event happening. Therefore, when we look at the year 2016 the Time variable will be 0 and in 2017 the Time variable will be 1.

3.3.3 Regression model

By adding the dependent variable, independent variable and control variables to a regression model, the following regression equation is stated:

$$\begin{aligned}\text{Tobins\_Q} = {} & \beta 0 + \beta 1 * \text{Treated} + \beta 2 * \text{Time} + \beta 3 * \text{Treated} * \text{Time} + \beta 4 * \text{ESG\_score} + \\ & \beta 5 * \text{log\_WNumber\_of\_employees} + \beta 6 * \text{Scaled\_R\_D\_expenses} + \beta 7 * \text{Debt\_Ratio} + \\ & \beta 8 * \text{log\_WTotal\_Assets} + \beta 9 * \text{ROA} + \varepsilon\end{aligned} \quad (1)$$

Whereby log_WNumber_of_employees is the winsorized and standardized number of employees of a company and log_WTotal_Asstes is the winsorized and standardized total assets of a company. Furthermore, $\beta 0$ is the intercept of the regression and ε is the error term of the regression. In table 9 in the appendix are the dependent, independent and control variables summarized.

There is high correlation between the variables ESG-score and Treated. ESG-score is correlated with the variable Treated, because when the Treated variable is zero the ESG-score is also zero. Namely, treated companies do not have an ESG-score in 2016 as they do not have an ESG disclosure in 2016 yet. This can cause problems in estimating the outcomes of the conducted test. However, ESG-Score is used in this study because the information level of a disclosure can influences the firm value of a company. This is further explained on page 9. To overcome this issue, a second regression equation will be performed whereby the control variable ESG_Score is excluded from the regression.

$$\text{Tobins\_Q} = \beta 0 + \beta 1*\text{Treated} + \beta 2*\text{Time} + \beta 3*\text{Treated*Time} + \beta 5*\text{log\_WNumber\_of\_employees} + \beta 6*\text{Scaled\_R\_D\_expenses} + \beta 7*\text{Debt\_Ratio} + \beta 8*\text{log\_WTotal\_Assets} + \beta 9*\text{ROA} + \varepsilon \quad (2)$$

A third equation is performed whereby the difference-in-differences coefficient and the Treated coefficient are replaced by continuous variables. The Treated variable is replaced by the ESG_Score of a selected company. In this way the problem of high correlation between the variables Treated and ESG-Score is solved, and the effect of disclosure quality can still be captured in calculating the firm value of a company.

$$\text{Tobins\_Q} = \beta 0 + \beta 1*\text{ESG\_Score} + \beta 2*\text{Time} + \beta 3*\text{ESG\_Score*Time} + \beta 5*\text{log\_WNumber\_of\_employees} + \beta 6*\text{Scaled\_R\_D\_expenses} + \beta 7*\text{Debt\_Ratio} + \beta 8*\text{log\_WTotal\_Assets} + \beta 9*\text{ROA} + \varepsilon \quad (3)$$

3.4 Sample and data

The research sample contains large European public-interest companies with at least 500 employees on average in a business year. There are four categories of large public-interest companies that need to disclose non-financial information (European Commission, 2014):

- Listed companies
- Insurance companies
- Banks
- Other companies designated by national authorities as public-interest entities

The sample for this research will only contain the category “listed companies”. Because, insurance companies and banks are financial companies, and their business model differs to much from non-financial listed companies. Furthermore, other companies designated by national authorities as public-interest entities are not taken into account, because little information is published about these companies and therefore, they are hard to track down.

Data is used from DataStream/Eikon and Orbis. The list with the European companies used is extracted from Orbis. Furthermore, the number of employees of the company, total liabilities and debt, net profit, research and development expenses, total liabilities and equity, total shareholders’ equity, market capitalisation and total assets were also extracted from Orbis. With this information, other information can be calculated, namely: total liabilities, debt ratio, scaled R and D expenses, return on assets (ROA) and Tobin’s Q. The ESG-score of the companies is extracted from Datastream/Eikon

based on the ISIN numbers of the companies extracted from Orbis. All data is end of year data. In table 1 a summary of the research sample is given.

3.4.1 Data elimination

Only companies are considered that were already fully active before CSR disclosure became mandatory (at least since 2013) and at least two years after disclosure became mandatory. In this way not very newly listed companies are added to the research sample, because those companies maybe experience abnormal levels of firm value.

By using the database Orbis 1609 listed European companies were extracted with more dan 500 employees on average in a business year and these companies have existed at least since 2013. This list of companies is first filtered based on the type of company. As mentioned above banks and insurance companies are filter out of the dataset. Then the dataset is filtered based on available data. When there is no data available from Datastream/Eikon, the company is deleted from the research sample. Companies with missing values of a downloaded variables out of Datastream/Eikon or Orbis, were deleted from the sample. Except for the missing values of the ESG-score from 2013 till 2016. This is done because, if these large numbers of missing values will be replaced by estimated values, the precision of this research will decline. The companies with the missing ESG-scores from 2013 till 2016 are selected for the treatment group of this research. The reasoning behind this is the assumption that when a company does not have any quality disclosure scores before 2017, there is no CSR disclosure present in their annual reports before 2017. The treatment group after filtering consists of 48 European listed companies. The control group consists out of companies with ESG-scores available from 2013 till 2017. After filtering the data on the missing values in every variable of empirical design, the control group exists out of 311 European listed companies.

Table 1: Composition of the research sample

	Total Sample	Treatment group	Control group
Listed EU companies between 2013-2019 (>500 employees)	1609		
Less:			
Companies with missing data	(1250)		
Final sample	359		
Companies without ESG score before 2017		48	
Companies with ESG scores before 2017			311

Table 1 presents the composition of the research sample of the main empirical test of this research.

3.4.2 Outlier treatment and skewness treatment

The now available data resulting from the previous steps named above, need to be checked on outliers and some variables may need to be standardized.

By summarizing the data, the minimum and maximum of each variable is shown. If the minimum and maximum of the variables have a big difference, there is likely an outlier. The histograms of these

variables can be plotted to see the distribution for those variables. For this difference-in-differences analysis, it became clear that the biggest outliers are in the variables *number of employees* and *total assets*. For handling these outliers winsorization is used. Winsorization changes the values of the outliers, so the value will be closer to the other values in the sample (Ghosh & Vogt, 2012). Per variable the correct threshold is determined for winsorizing. The threshold for winsorization is determined by the number of untouched data. By plotting the distribution of the used variables, the length of the tales of the distributions can be seen. For the variables *number of employees* and *total assets* the threshold used is 0.01 and 0.99. This means that the bottom and top one percent of the values will be changed to the chosen value of the threshold used (Sanz, 2019).
Furthermore, skewness in the data is treated by taking the natural log of the variable. The variables *number of employees* and *total assets* are treated for skewness.

4. Empirical analysis and results

In this chapter the analysis and the results will be covered. The results from the tested model are analysed and ta clear answer is given on the research question of this thesis.

4.1 Results

4.1.1 Descriptive statistics

Table 2: Descriptive statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Treated	718	0.134	0.341	0	0	0	1
Time	718	0.500	0.500	0	0	1	1
DiD	718	0.067	0.250	0	0	0	1
ESG_Score	718	58.295	22.580	0	48.6	75.3	93
WNumber_employees	718	9.700	1.447	6.267	8.594	10.728	13.373
Scaled_R_D_expenses	718	0.015	0.027	0	0	0.02	0
Debt_ratio	718	0.669	0.293	−0.072	0.528	0.780	4.647
WTotal_Assets	718	15.741	1.400	12.668	14.708	16.630	19.861
ROA	718	0.055	0.112	−0.289	0.022	0.072	2.501

Table 2 presents the descriptive statistics of the main empirical test of this research.

In table 2, the descriptive statistics of regression equation 1 are shown. In table 5 in the appendix are the meanings of the variables shown presented. As can be seen in table 2 the number of observations of this research is 718. This number is the outcome of observing the total sample group of 359 for the years 2016 and 2017, which totals a number of 786 observations. The variable *DID* presented in table 2 consists out of the Treated variable multiplied by the Time variable. The next thing remarkable is the spread of the ESG-scores. This spread is quite big, because of the fact that this variable is not treated for outliers. The case with this variable is that when this variable is treated for outliers, also the ESG-scores of 0 will be changed to a larger number. But the ESG-scores of 0 represent the treatment group, which do not have CSR disclosures in the year 2016 and therefore no ESG-score for 2016. As can be seen in table 2, the number of employees and the total assets are log-transformed. As mentioned on page 21, these variables are log-transformed based on the fact that the data contained skewedness.

4.1.2 Regression outcomes

Table 3: Simple differences test

	2016	2017	Difference
Treatment group	2.278	2.535	0.257
Control group	1.998	2.303	0.305
Difference	0.279	0.231	0.048

Table 3 presents a simple test to determing the difference in Tobin's Q between the treatment group and control group over the years 2016 and 2017 for the main empirical test of this research.

As first step to clarify the data a simple test is performed to show the difference between the mean of the dependent variable *firm value* of the two groups. The results of this simple test can be seen in table 3. The proxy for firm value in this research is the Tobin's Q. As can be seen in table 3, the difference between the mean Tobin's Q of 2016 and 2017 for the treatment group is 0.257. The difference between the mean Tobin's Q of 2016 and 2017 for the control group is 0.305. which means that there is a difference in growth between the treatment group and control group of 0.048. This already indicates a small extra growth in firm value for the control group compared to the treatment group. The next step is to indicate if this difference in growth is attributable to the in force coming of Directive 2014/95/EU, because the control variables mentioned on page 15 are not taken into account in this simple test.

Table 4: Difference-in-Differences regression

	Dependent variable:			
	Tobins_Q			
	(1)	(2)	(3)	(4)
Treated	0.279 (0.436)	−0.615 (0.579)	−0.764* (0.426)	
Time	0.305 (0.225)	0.095 (0.220)	0.100 (0.220)	0.262 (0.626)
DiD	−0.048 (0.616)	0.107 (0.663)	0.229 (0.580)	
DiD2				−0.003 (0.010)
ESG_Score		0.003 (0.007)		0.009 (0.006)
WNumber_employees		0.252** (0.100)	0.255** (0.100)	0.251** (0.100)
Scaled_R_D_expenses		7.234* (3.805)	7.520** (3.728)	6.749* (3.781)
Debt_ratio		0.729** (0.360)	0.736** (0.359)	0.771** (0.356)
WTotal_Assets		−0.813*** (0.114)	−0.798*** (0.106)	−0.809*** (0.113)
ROA		3.755*** (0.893)	3.776*** (0.891)	3.774*** (0.894)
Constant	1.998*** (0.159)	11.601*** (1.307)	11.489*** (1.272)	11.091*** (1.314)
Observations	718	718	718	718
R^2	0.004	0.138	0.138	0.136
Adjusted R^2	−0.0004	0.127	0.128	0.126
Residual Std. Error	2.809 (df = 714)	2.623 (df = 708)	2.621 (df = 709)	2.625 (df = 709)
F Statistic	0.907 (df = 3; 714)	12.629*** (df = 9; 708)	14.207*** (df = 8; 709)	13.935*** (df = 8; 709)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 4 presents the regression outcomes of the main empirical test of this research.
(1) Is the Difference-in-differences test without any control variables added.
(2) Is the Difference-in-differences test with control variables added.
(3) Is the Difference-in-differences test with control variables added, but the control variable ESG-Score is excluded.
(4) Is the Difference-in-differences test with control variables added, however the difference in difference coefficient is replaced by the ESG-score*Time (a continuous variable).

In table 4, the regression outcomes of the difference-in-differences analysis are shown. The coefficients per variable are shown in table 4 and the standard error of the variable are shown between parentheses.

In the first column there are no control variables added to the regression. This means that only the Time, Treated and DiD variable are added to determine the Tobin's Q of a company. The $\beta 1$ (Treated) coefficient that represents the effect of a firm experiencing treatment is not significant for determining

the Tobin's Q of a company. The variable Treated had a coefficient of 0.279 (p = 0.522). The $\beta 2$ (Time) coefficient that represents the effect of the post event period, is not significant for determining the Tobin's Q of a company. The variable Time has a coefficient of 0.305 (p = 0.176). The last variable is the variable of interest, the DiD variable. This variable equals the treatment effect of the in force coming of Directive 2014/95/EU. In this model the DiD variable has a coefficient of -0.048 (p = 0.938). This variable is also not significant for determining the firm value of a company. Which indicates that the in force coming of directive Directive 2014/95/EU was not significant for determining the firm value of a company.

In the second column in table 4, the outcomes of regression equation 1 are shown. Five of the added control variables are significant for determining the firm value of a company. First, the number of employees (log_WNumber_employees) is significant for determining firm value of a European listed company, with a coefficient of 0.252 (p = 0.012). This variable is significant at a level of 0.05. This means that when the standardised number of employees of a company increases with one the Tobin's Q of a company will increase with 0.252.

The second control variable significant for determining the firm value of a European listed company is R and D expenses (Scaled_R_D_expenses), with a coefficient of 7.234 (p = 0.058). This variable is significant at a level of 0.10. This means that when the scaled R and D expenses of a company increases with one the Tobin's Q of a company will increase with 7.234.

The third control variable significant for determining the firm value of a European listed company is the debt ratio (Debt_ratio), with a coefficient of 0.729 (p = 0.043). This variable is significant at a level of 0.05. This means that when the debt ratio of a company increases with one the Tobin's Q of a company will increase with 0.729.

The fourth control variable significant for determining the firm value of a European listed company is total assets (log_WTotal_Assets), with a coefficient of -0.813 (p < 0.001). This variable is significant at a level of 0.001. This means that when the standardised total assets of a company increases with one the Tobin's Q of a company will decrease with 0.813.

The last variable significant for determining the firm value of a European listed company is return on assets (ROA), with a coefficient of 3.755 (p < 0.001). This variable is significant at a level of 0.001. This means that when the return on assets of a company increases with one the Tobin's Q of a company will increase with 3.755.

The $\beta 1$ (Treated) coefficient is not significant for determining the Tobin's Q of a company. As well, the $\beta 2$ (Time) coefficient is not significant for determining the Tobin's Q of a company.

The coefficient of interest $\beta 3$ (DiD), is the coefficient indicates the treatment effect of the in force coming of Directive 2014/95/EU, when controlling for the control variables mentioned op page 15. The coefficient of the variable *DiD* is 0.107 (p =0.872). This coefficient is not significant for determining the firm value of a company. Which indicates that the in force coming of directive

Directive 2014/95/EU was not significant for determining the firm value of a company. This means that the in force coming of Directive 2014/95/EU did not have effect on the firm value of listed European companies and that the difference in firm value growth between the treatment and control group in table 3 in the appendix, is not attributable to the in force coming of Directive 2014/95/EU.

In column 3 of table 4, the outcomes of regression equation 2 are shown. The control variable ESG-score is excluded from the regression. This is done because of the high correlation between the variable ESG-score and the variable Treated, as explained on page 18. When the control variable ESG-score is excluded from the regression, the other five control variables remain significant for determining the Tobin's Q of a European listed company in the selected time frame. However, the variable Treated is now significant at a level of 0.1 with a coefficient of -0.764 ($p = 0.073$). Furthermore, the variable of interest (DiD) has increased to 0.229 ($p = 0.693$). However, this variable is still not significant, which indicates that the in force coming of directive Directive 2014/95/EU was not significant for determining the firm value of a company.

In column 4 of table 4 the outcomes of regression equation 3 are shown. The DiD coefficient is replaced by the ESG-score multiplied by the Time coefficient (DiD2). ESG-score is a continuous variable, which means that the DiD2 variable is equally a continuous variable. As explained on page 18, the variable ESG-score is correlated with the variable Treated. To remove the correlation between the variables Treated and ESG-score, the variable DiD2 is used in column 4.
The results change a bit in comparison to the results in column 2, because of the use of the new difference in differences variable. The variable ESG_Score has a coefficient of 0.009 ($p = 0.117$) and is not significant for determining firm value in this research. The coefficient of the variable Time is 0.262 ($p = 0.676$) is still not significant for determining firm value in this research setting. The variable of interest (DiD2) has a coefficient of -0.003 ($p = 0.731$), which means that the in force coming of directive Directive 2014/95/EU was not significant for determining the firm value of a company, when using ESG-Score as a proxy for treated. The other control variables are still significant for determining firm value after in force coming of directive Directive 2014/95/EU.

In figure 1 in the appendix, the means of the Tobin's Q for 2016 and 2017 for the treatment and control group are plotted. As mentioned on page 17, in the difference-in-differences model is expected that the treatment and control move parallel to each other over time. As can be seen in figure 1, the lines almost are parallel to each other. As can be seen in table 3, the difference in growth in Tobin's Q between the treatment and control group is 0.048. This is a very small difference, therefore the growth in Tobin's Q of the treatment group and control group is almost parallel to each other in figure 1. As mentioned above this small difference cannot be attributed to the in force coming of Directive 2014/95/EU.

4.2 Regression outcomes compared to the research question

As mentioned on page 13, the hypothesis of the research is:

H0: Mandatory CSR disclosure in Europe does not affect firm value
H1: Mandatory CSR disclosure in Europe affects firm value

The results occurring from performing regression equation 1, 2 and 3 indicate that there is no effect of mandatory CSR disclosure in Europe on firm value at all. Which means that the H0 hypothesis will not be rejected.
To answer the main research question of this thesis:

Does mandatory CSR disclosure in the European Union affect firm value?

Mandatory CSR disclosure in the European Union does not affect firm value. As mentioned earlier on, sometimes an event study can have multiple events that can influence the dependent variable of the research. In this event study, there was one more event that may have influenced the firm value of European listed companies in an earlier stage. The new regulation was announced in 2014 (Official Journal of the European Union, 2014). This means that companies but also shareholders and stakeholders could already have reacted in 2014 after the announcement of Directive 2014/95/EU. This can be done by companies by already making investments in publishing CSR reports before 2017. Furthermore, investors already anticipate stricter future regulation, which brings a lot of costs (Grewal, Riedl, & Serafeim, 2019). If this is the case, a larger and maybe significant effect on firm value can be detected after the announcement of Directive 2014/95/EU. This could lead to a new future research about the effect of mandatory CSR disclosure on European companies.
Furthermore, after the outcome of a not significant effect of the in force coming of mandatory CSR disclosure, the question is being asked how much value shareholders attach to CSR disclosures in the whole European Union. In earlier research done by Hassel, Nilsson and Nyquist (2011) there is a negative relation found between environmental information and market value of Swedish firms. However, Hu et al. (2018) stated that CSR affects firm value positively. These researches are conducted in different countries and explain different views on how CSR disclosure impact on firm value. Because of this tension, there is a chance that in 2017 shareholders on average did not base firm value on the CSR reports of a European company. Therefore, the results of the effect of Directive 2014/95/EU on firm value came back insignificant.

5. Conclusion

CSR is a largely discussed topic in society. Because of the growing awareness of corporate social responsibility, the demand for non-financial information equally increases by stakeholders. By reviewing existing research done about mandatory CSR disclosure, tension is found in the results of different researches (Loannis & Serafeim, 2017; Deng, Kang, & Low, 2013; Grewal, Riedl, & Serafeim, 2019; Friedman, 2007). This leads to the main research question of this thesis: *Does mandatory CSR disclosure in the European Union affect firm value?* By applying a difference-in-differences model, an answer can be found for this research question. The difference-in-differences analysis for this research contains six control variables, namely: ESG-score, number of employees, scaled R and D expenses, debt ratio, total assets and return on assets. Five of these control variables are significant for determining the Tobin's Q (firm value) of a company. These five control variables are: number of employees, scaled R and D expenses, debt ratio, total assets and return on assets. The treatment component of this difference-in-differences analysis is captured in the variable Treated and the time aspect of this difference-in-differences analysis is captured in the variable Time. These variables are not significant for determining the Tobin's Q of a company. The coefficient of the variable DiD, is the coefficient that indicates the treatment effect of the in force coming of Directive 2014/95/EU, when controlling for the six control variables mentioned op above. This is the coefficient of interest and is the most important coefficient to answer the main research question. The DiD is however not significant for determining the Tobin's Q of a company. Which indicates that the in force coming of Directive 2014/95/EU did not affect the firm value of European listed companies. When the DiD coefficient is replaced by a continuous variable (DiD2), by multiplying ESG-score with the variable Time, correlation between the variables Treated and ESG-score is removed. The results of using ESG-score instead of the variable Treated came equally back as not significant, which means that Directive 2014/95/EU did not affect the firm value of European listed firms. The reasons behind the insignificant relation between mandatory CSR disclosure and firm value is first that companies and shareholders could have already reacted when Directive 2014/95/EU was announced (Grewal, Riedl, & Serafeim, 2019). Another reason for the insignificant relationship is that in earlier research done there is tension about how much firm value is attached to CSR disclosures by shareholders (Hassel, Nilsson, & Nyquist, 2011; Hu, Chen, Shao, & Gao, 2018). Because of this tension, there is a chance that in 2017 shareholders on average did not base firm value on the CSR reports of a European company.

This thesis contributes to the existing knowledge by giving an answer to the tension in the research field discussed in the theoretical background and adding more information to the existing literature. This is done by measuring the effect of in force coming of mandatory CSR disclosure on firm value in Europe. These results indicate a different type of view, on if mandatory CSR disclosure impacts firm value, then other existing research about this topic. Therefore, these results can bring extra information

to countries without a similar regulation. Nevertheless, it can at the same time bring extra information to the EU about which effect the in force coming of Directive 2014/95/EU had on European listed companies.

There are several limitations to this thesis. The first limitation is that the treatment group is quite small to generalize the results of this thesis. By using a group of 48 European companies, a very small part of all European companies is used. The next limitation is the use of only Tobin's Q as a proxy for firm value. Different types of proxies for firm value can be used. For example, stock prices and future cash flows (Mittelbach-Hörmanseder, Hummel, & Rammerstorfer, 2021; Barth, Cahan, Chen, & Venter, 2017). These proxies for firm value could lead to different results in the main empirical test conducted in this thesis. The last limitation of this research is the fact that the assumption is made that companies with no ESG-score before 2017 did not have an CSR disclosure before the in force coming of Directive 2014/95/EU. However, there is a possibility of the database not being complete. When this is the case the assumption is made falsely.

Possible future research can be done about the impact of the announcement of Directive 2014/95/EU in 2014 (Official Journal of the European Union, 2014). After the announcement of Directive 2014/95/EU companies and shareholders could already have reacted. This means that there is maybe a significant effect of the announcement of Directive/95/EU on firm value. Another future research topic is the value of CSR reports to shareholders in 2017. Earlier research is done about CSR disclosure and the effect on firm value (Hassel, Nilsson, & Nyquist, 2011; Hu, Chen, Shao, & Gao, 2018). However, to better understand the not significant effect of the in force coming of Directive 2014/95/EU, a clear view must be given if this can be the effect of shareholders in general not finding CSR disclosures in Europe in 2017 important to determine firm value. A last possible future research is about the same topic as this research but with different proxies for firm value.

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Appendix

Figure 1: Difference-in-Differences plot

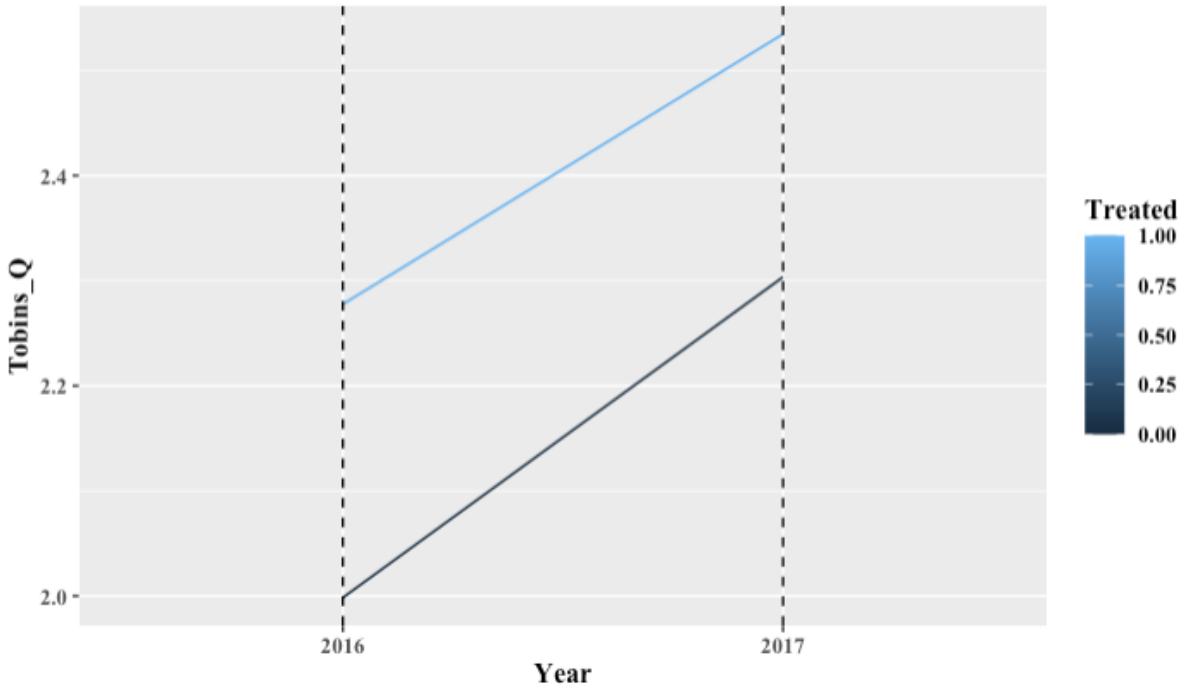

Figure 1 presents the difference in Tobin's Q between the treatment group and control group over the years 2016 and 2017 for the main empirical test of this research.

Table 5: Variable explanation

	Meaning	Calculation	Source
Tobin's Q	Proxy for firm value in this research	(Market value equity + Book value liabilities) / (Book value equity + Book value liabilities)	Orbis
Treated	Indicates the extra value to the dependend variable if a company belongs to the treatment group	Dummy variable: 1 (treated) 0 (not treated)	Orbis
Time	Indicates the extra value to the dependend variable if the calulation concerns the post event period	Dummy variable: 1 (2017) 0 (2016)	
DiD	Indicated the extra value to the depend variable for a treated comapny in the post event period	Treated*Time	
ESG_Score	Indicates the quality of a ESG report	Extracted variable from Datastream/Eikon	Datastream/Eikon
log_Wnumber_employees	The winsorized and standardized number of employees of a company	Number of employees extracted variable from Orbis	Orbis
Scaled_R_D_expenses	Proxy for research and development costs	R and D expenses / Total assets	Orbis
Debt_ratio	The ratio between total liabilities and total assets	Total liabilities / Total assets	Orbis
log_Wtotal_Assets	The winsorized and standardized total assets value of a company	Total assets extracted variable from Orbis	Orbis
ROA	Return on assets	Net profit / Total assets	Orbis

Table 5 presents the meaning, calculation and data source of the variables used in this research.