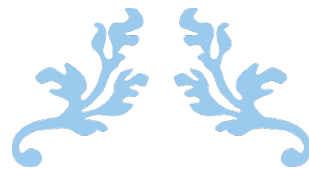


**Radboud University**



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**CAN INVESTMENTS IN CSR ACT AS A  
BUFFER FOR FIRMS DURING CRISIS  
PERIOD?**

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## 1. Introduction

What is CSR (Corporate Social Responsibility) and why has the term become so overly used in the past 3 decades? Many researches are done in this direction, and all of them are different in the way how the researcher sees the value of CSR. Be it in relation to the firm value (Servaes and Tamayo, 2013; Jo and Harjoto, 2011; Edmans, 2012), financial background of it (Heal, 2005), M&A (Aktas et al., 2011; Deng et al., 2013) whether it is tangible (Theaker, 2017) or intangible asset for the firm (Vilanova et al. 2009) or plainly how CSR has evolved (Preson, 1975; Moura-Leite, 2011) and is used nowadays.

As society's interest grew tremendously over the past 3 decades with environmental issues (waste management, pollution, etc.), as well as social issues (human rights, rights of workers, gender discrimination on workplace) (Garcia-Sanchez, Cuadrado-Ballestros & Sepulveda, 2014; Reverte, 2009), so did the demand for bigger transparency from firms (Dubink, Graafland & Van Liedekerke, 2008; Fernandez-Feijoo, Romero & Ruiz, 2014; Kühn, Stiglbauer & Heel, 2014). Hence, the trend for investing in CSR has become very popular in the past years and according to a report 80% of S&P 500 companies have invested in CSR in 2018. This trend can only lead to an assumption that CSR has been becoming a positive trend and many companies and their CEO's believe that investing in CSR leads to benefits to the company. These benefits were researched by many, and have come to different results (Du at al. 2010; Weber, 2008). Finding a common way to look at the investment in CSR or even the definition of CSR (Dahlsrud, 2006) has been a challenge for the researches, until the creation on ESG report, which covers the investments in Environment, sustainability and governance categories. Thus, combines all different types of investments into a one report making it easy to compare companies with each other without a need to sort them for the same type of investment.

The crisis periods have been identified differently in different research papers, however, one of the most used one was either the financial crisis of 2009 in US or as crisis point the S&P

500 index market crash date (Jones et al. 2000). S&P 500 index has been a market implication for US Stock market for past decade. And has become a benchmark in the researches of the past years. That is why, the research is focused on the S&P 500 major crashes. There have been many major crashes in the past 20 years (Bates, 2000; Mishkin, 2002), and as the research is focused on looking at different crisis periods, from the sample of daily returns data of years 2010-2016 top 5% negative returns and top 5% positive return dates have been found and taken as a research basis. The top and bottom are to be referred as “good times” and “bad times” for firms respectively.

Though many firms have taken up the trend of investing in CSR, however, there were contradictory results from researches as to why such investments have been growing, this research paper will look at the relation of CSR and the stock returns in crisis period. While many researches have been done on CSR, none of them focused solely whether or not investing in CSR can act as some type of “buffer” for firms when the stock market is in decline and the prices and returns are dropping hazardously.

Using event study methodology, this thesis looks at whether investments in CSR help firms have low Cumulative Abnormal Returns (CAR) during the “bad times” contrary to firms who do not invest in CSR. i.e. If firms that invested in CSR will have low CAR when the index daily return is in bottom 5% and if this CAR is significantly different from zero.

This thesis will contribute to the existing literature in several ways. First of all, this thesis is part of the research that hasn't been studied extensively since 2000 and 2005, and even there it brings a new approach of studying CSR and crisis points. The investigation of Reputation, Goodwill and reputation for CSR in relation to different crisis periods has been studied by Jones et al (2000) and Schnietz & Epstein (2005).

Secondly, the research will use the current data of 2010-2016, making the research more current and up to date. Also, as the past researches on this topic have been dealing with simply an annotation for CSR (“reputation for” (Schnietz & Epstein (2005) or using “reservoir of goodwill”

(Jones et al. (2000)), this thesis looks directly at investments in CSR through checking the ESG scores of report for S&P 500 firms.

The outline of the thesis will follow the structure of: Chapter 2 will give an overview of the existing literature on CSR. Chapter 3 will formulate the hypotheses. Chapter 4 will look at the research method and the sample. In chapter 5 the results will be discussed. The final chapter will summarize the conclusion, and discuss the limitations of the thesis and suggestions for further studies.

## 2. Literature overview

### 2.1 Definition of CSR

The core issue with respect to the research on CSR is the problem of defining the concept. Even today, there has not been found a universal definition of CSR (Rahman, 2011; Carroll, 1999; Wood 1991). Both business and academic perspectives propose numerous definitions on CSR. The most notable definition is by Davis (1973) – responsibility begins where the law ends. However, this definition has been getting outdated, as well as heavily revised, due to recent policy changes in many EU countries, CSR reporting is starting to become a legal issue and not abiding by the law is either fined or gives a damage to the reputation of the company (Steurer, Martinuzzi & Marguala, 2012; Dubbink, Graadland & Van Liedekerke, 2008; Fernandez-Feijoo, Romero & Ruiz, 2014; Kühn, Stiglbauer & Heel, 2014).

There are other definitions as well, some focusing on social stakeholder welfare (Frooman, 1997), however, according to Van Marrewijk (2003) the problem of finding a working definition is due to too many definitions available and all are biased to a specific interest only. There has been research conducted on finding similarities of CSR definitions to put them into a strict dimension table. Dahlsrud (2006) was one of the firsts who conducted such research and

came up with the five diminutions, However, later, Rahman (2011), has further researched the topic and broadened the dimensions to 10, see table 1.

*Table 1. The 10 Dimensions of CSR (Rahman, 2011)*

<b>Dimension</b>
Obligation to the Society
Stakeholder's involvement
Improving the quality of life
Economic development
Ethical business practice
Law Abiding
Voluntariness
Human rights
Protection of Environment
Transparency & Accountability

As, all 10 dimensions are included in the Eikon – Thompson Reuters ESG score report, hence, the research should not face any problems. However, the issue lies in the previous research on CSR and Crisis, which used different measures and thus, may not be fully comparable to their methods used, but gives the novelty in this direction of research. It should be noted that in research of CSR and M&A (Deng et al., 2013), as well as firm value and CSR (Servaes and Tamayo, 2013) the CSR scores used were KLD as well as the ESG score which is used in this thesis.

## 2.2 CSR in Research

As mentioned before, with the growing importance of CSR, both for firms and society, has not been overlooked by the researches, who have been looking at different aspects of it. Even today there are no definite all encompassing results on the research on CSR, as it has been very diverse. According to Lee (2008) conceptualization of and the research on CSR has been evolving along two roads:

1. In terms of the level analysis, research has been moving from a discussion of the macro social effects to an organizational-level analysis of CSR and its impact on organizational processes and performance; and

2. In terms of the theoretical orientation of this field, research has been shifted from explicitly normative and ethics-oriented arguments to implicitly normative and performance-oriented managerial studies.

The literature on CSR has also been researched by Carroll (1999,2008); Carroll and Shabana (2010) providing a comprehensive historical development and bibliography of the core academic literature (see also Preston, 1975, Windson, 2001; Crowther, 2008). Other researches such as Dahlsrud (2006), Frederick (2008), Joyner and Payne (2002) have focused on presenting the useful reviews of the significance of CSR. (see also, Lee (2008); Moir (2001); and Valor (2005)). Recently, there have also been new alternative concepts proposed, including corporate citizenship (Wood and Lodgson, 2002; Waddock, 2004), corporate sustainability (Marrewijk, 2003) and corporate social performance (Wood, 1991, 2010).

### 2.3 CSR: Shareholder vs Stakeholder debate

The thesis will now discuss a very crucial topic for CSR research, as the two perspectives described here draft the core of many researches on CSR and their divestiture. The two perspectives or better said theories are: Shareholder<sup>1</sup> Theory proposed by Milton Friedman (1962) and the Stakeholder Theory by Edward Freeman (1984,1999) (see also. Harrison & Freeman, 1999; Donaldson & Preston, 1995). Both theories have been researched extensively and none have given consistent results. Several researches reported the positive link between CSR and Corporate Financial Performance (CFP), however, others gave conflicting results, making the gap between two theories even wider. The thesis will discuss both theories and give their definitions in the following sections, as both are crucial to understanding the research behind most of the CSR dimen-

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<sup>1</sup> It is often referred in literature as Stockholder theory, however, as in the media and in further literature it is usually referred as Shareholder theory, it will be referred to as much.

sions and development. The thesis will also make a small emphasis on the literature on Stakeholder view in relation of CSR and CFP, as indirectly but the research also looks at the financial performance of the firm just in a different setting i.e. crisis point in this case.

### Stakeholder perspective

Scandals at Enron, ImClone, WorldCom have provided decisive leverage of Stakeholder theory, which asks the managers to balance the needs of all stakeholders of the company even at the expense of the shareholder value, over the shareholder theory entailing that the primary duty is to maximize shareholder returns. (Smith, 2003). According to Freeman (1984), the “father” of the stakeholder theory, firms should operate to comply with the needs of their stakeholders, which are defined as individuals or groups that have an interest in the firm. The groups and individuals later have been identified as consumers, suppliers, employees, shareholders, etc. (Freeman, Wicks, & Parmar, 2004; Shaefer, 2008). As CSR has always encouraged firms to take interest of all stakeholders when making decisions, it has become as a direct link between the firm and the stakeholders (Freeman, 1984; Hill & Jones, 1992; Jensen & Mechling, 1976).

In the past years there has been an extensive investigation between CSR and firm value, however, as results are inconsistent, the research is still ongoing and has been shifting in different directions. The research has been done in different markets, developed (US, EU), Emerging (China, Brazil, etc.) and developing (Turkey, Iran, Ghana, etc.) and all of them even in their category have given different results. (Zhu, Sun & Leung, 2014; Arendt & Rettel, 2010; Aupperle, Carroll & Hatfield, 2017; Crisóstomo, 2011; Famiyeh, 2016; Selcuk & Kiymaz, 2017; Tsoutsoura, 2004).

If looked at results of Famiyeh (2016), there is a direct and positive link between CSR initiative of the company with its operational competitive performance in Ghana. The author checked the relationship in terms of cost, quality, flexibility and delivery performance, and found that in all parts CSR initiative brought company comparative advantage and significant profit. On



the contrary Selcuk & Kiymaz (2017) find negative relationship between CSR and financial performance, when inspecting firms listed on Borsa Istanbul during 2009-2011. From this two different researches both in the same market, we could see that CSR initiatives affect them differently, bringing us different results whatsoever. However, it is still interesting to see that in a country such as Ghana CSR initiative is highly welcomed by the customers and investors.

Looking at study by Arendt & Brettel (2010) investing in CSR brings significant results for the company depending on the company size, industry it operates in as well as marketing budget. They have tested over 300 European companies with existing CSR scales similar to ESG scores using group comparison method. However, as with vast majority of the research which is usually on US market, this research is also not applicable to be generalized over regions like Asia or USA, giving future research more openness to explore in terms of world market and generalization.

### Shareholder perspective

As Davis (1973) has mentioned – company has a responsibility, which begins where law ends, however, this ideology goes against the shareholder perspective, which is focused on achieving the main objective of the company i.e. maximize the profits (Friedman, 1962). There have been many researches done on the idea that benefits of investment in CSR do not exceed the initial investments, and actually may act as liability and expenses for the company (Alexander & Buchholz, 1978; McWilliams & Sigel, 2000). The groups of researchers that are focused on this theory claim that “honourable” or better said “noble” acts from the company managers come at expense of shareholders and do not necessarily bring good to the company. (Renneboog, Ter Horst, & Zhang, 2008; Cheers, 2001; Barnea & Rubin, 2010; Crisóstomo, 2011).

## 2.4 CSR and Crisis Periods Research

This thesis is focused on possible benefits of investing in CSR in crisis times. As for the past several decades only several research papers have tried to look at this idea, though their idea and methodology has never been as straightforward as the one proposed by this thesis. The most prominent papers in this type of research were by Jones at al (2000) and K. Schniets, M. Epstein (2005). Each paper has similarities in the way this research is structured and it has taken after these papers, however, this thesis combined the methodology and the ideas that were used in the previous papers and created a different idea all together to look at. In the next section these two papers will be looked at more thoroughly to see how the research proposed differentiates from them.

The paper by Jones at al. (2000) has looked at the reputation and its implications for firms during crisis period. They were the first who have created a term “reservoir of goodwill” which was an annotation of the company’s reputation. Jones at al. in their paper have looked at whether reputation could act as the “buffer” for firms during crisis period, specifically during the stock market crashes of 1987 and 1989. However, reputation or goodwill as it is usually written in the company’s income statement and balance sheet (under intangible assests) is not an easy term to define and give value to. Even today after 18 years that the paper by Jones at al. has been published, the firms are struggling to value their intangible assets, i.e. reputation or goodwill. The way that Jones at al. (2000) overcame this issue, was that they have used Fortune 500 report to identify the reputable companies. They have used OLS regression as their method of analysis and have found that the reputation and the year interaction term was significant. Hence, that reputation did act as a buffer for firms during the market crashes on 1987 and 1989.

In 2005 following the Jones at. al. (2000) paper K.Schniets and M. Epstein published a paper exploring financial value of reputation for CSR during a crisis period. Their paper has been

centred around the ideas from fields of strategy, reputation, risk and corporate social responsibility. They have used a similar methodology of determining the reputation as Jones et al (2000) paper i.e. Fortune 500 companies and their list, the difference was that for valuing CSR they used KLD scores. They used event study methodology to check whether companies who had reputation for CSR would have lower CAR during crisis – announcement of Seattle WTO failure. Their findings showed that indeed the returns of the firms that had reputation for CSR declined only by 1% and were not significant, while for the companies that didn't have reputation for CSR, the decline was around 2.5% and was statistically significant.

To conclude, the history and research of CSR has been very extensive throughout past 60 years. In the very beginning of emerging of the concept in 1950s the focus was primarily on businesses responsibilities to society and doing good deeds for it. In the 70s as the managers applied the traditional management function when dealing with CSR issues, the research shifted accordingly. For the next 20 years many researches have been published, in journals of management, strategy, finance and thus by the beginning of 21st century the concept has become universally approved and an important strategic issue that many companies didn't want to overlook. (Moura-Leite, 2011)

### 3. Hypothesis

The paper has extensively mentioned the idea behind it, and how it wanted to combine the research conducted by Jones et al (2000) and K. Schnietz and M. Epstein (2005) to check the direct impact of CSR investments on crisis periods. The main hypothesis proposed by the research is:

*H1. Firms that invest in CSR have lower abnormal return during S&P 500 index crashes than those that didn't invest in CSR*

This hypothesis stems from the idea that investing in CSR has not only a financial value (as was seen from Servaes and Tamayo, 2013) but can also helps firms maintain their positions

during crisis periods. This hypothesis is linked with the idea that of Jones et al (2000) reservoir of goodwill, however, this time the investments in CSR could be obtained much easier than that of the goodwill or reputation of CSR (K. Schneits and M. Epstein, 2005).

The research also proposed the following several hypotheses, which would help examine the data further if the first hypothesis becomes valid and additionally statistically significant. Reason being that in previous researches the decline of the CSR positive firms has been seen but has never been statistically significant. Thus, not proving the final idea that CSR can actually help during crisis period. The follow up hypothesis are as follows:

*H2a. Firms operating in “irresponsible” industries and not investing in CSR will have significantly large declines than those that invest in CSR*

*H2b. Firms operating in “clean” industries and not investing in CSR will have large declines than those that do invest in CSR and operate in the same industry.*

## 4. Methodology

The methodology chapter will be divided into several subsections to give the understanding of the sample selection, the methodology of the event study in general, variables and reasons for choosing specific models for the analyses.

### 4.1 Data Overview

As the research focused on S&P 500 companies, the firm data was drawn from their website as well as trustworthy databases<sup>2</sup> and websites<sup>3</sup> to get the accurate information on stock prices and whether or not they have published an ESG report<sup>4</sup>. For today’s knowledge there are 505 companies present in S&P 500 index<sup>5</sup>.

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<sup>2</sup> Eikon – Thompson reuters

<sup>3</sup> Yahoo.finance & bloomberg

<sup>4</sup> available both on Yahoo.finance and Eikon, for clarity reasons and for reasons mentioned in Chapter 2.1 the Eikon ESG report scored were used.

<sup>5</sup> The number of companies varies and is adjusted every year, but is never more than 507 companies or less than 497 companies.

The First step in the data collection was to collect the most recent sample - 2008-2018, however, later, the sample was adjusted according to data availability on ESG reporting score. The database had data available from 2008, however, it had many missing variables and hence, the starting date of January 2010 was chosen, as it was the first year where the data was fully available and didn't report any missing entries. As for the end date, even if the databases are updated continuously, they are not able to update the non-existence data for ESG reporting as of 2017-2018, reason being, that 2017 reports haven't been officially published and 2018 has yet to enter its 3<sup>rd</sup> quarter. Therefore, the final timeline of the sample was 4<sup>th</sup> January 2010 – 31<sup>st</sup> December 2016.

The crisis points were found from the S&P 500 price data sample by means of calculating the daily log-returns over the whole sample period and then finding the bottom 5% of those returns and their corresponding dates. The highest negative return was -6.90% and highest positive return was 4.63% on 8<sup>th</sup> of August 2011 and 9<sup>th</sup> of August 2011 respectively. The average return for Top 5% and for Bottom 5% excluding the highest returns were 2.23% and -2.43% respectively. Range being from 1.62%-4.53% and -4.90%- -1.67%. The detailed dates and the daily returns of Top and Bottom 5% can be found in the Appendix 1. Appendix 2 and 3, also provide the histogram and returns over the sample period in a convenient way of graphs. The bottom and top 5% were chosen to later see how firms who invested in CSR performed during “bad” times and “good” times.

As mentioned previously, the index continuously updates its company lists, and thus, as the crash dates were in different years, and for further analysis, the companies were sorted by the time they have been in the index and also the companies that have been in the index over the whole sample period have been added. In total there were 478 companies that were present in the index over the whole sample timeline, however, some had limitation on the historical price data,

to be exact 18 companies didn't have enough price data for the whole sample period publicly available. Hence, the final analysis was done on 460 companies.

As for the ESG report score, the trustworthiness of the score has been explained in Chapter 2.1 as well as its comparability to similar scores such as KLD, which is also used to assess the CSR scores in the researches. The database gave the overall score from 0-100, 0 being not publishing the report and 100 publishing a full concrete report. As the score itself is annotation of how full and how well to the dimensions previously mentioned the report adheres to, the scores were converted to a dummy variable of 0 and 1. 0 – not publishing at all i.e. not investing in CSR, and 1 – publishing the report (no matter whether it received full 100 or a lesser score) i.e. investing in CSR. As mentioned previously, several scores (3 scores in year 2015) have been converted from 88 to 100, this made the report with scores of 88 and 100 equal in the dummy variable that was created. The creation of dummy variable simply served to check whether the company invested in CSR or not, as the thesis didn't investigate how much was invested. As companies investing in CSR and publishing an ESG report have been changing every year, this occurrence was controlled for, thus, in every year there was a different amount of companies investing in CSR. The number of companies investing in CSR per year are presented in table 2.

Table 2. Overview of Number of Crash Points and Investment in CSR

Year	Number of crash dates		Investing in CSR	Not investing in CSR
	In the top 5% crash dates <sup>6</sup>			
2010	15		178	282
2011	30		196	264
2012	5		203	257
2013	3		240	220

<sup>6</sup> According to sample of over 1500 dates, the 5% is 76 days, thus there were 76 event studies analyzed and looked at.

2014	5	267	193
2015	10	295	165
2016	8	304	156

## 4.2 Event Study Methodology

This thesis uses event study methodology to compare the abnormal returns accruing to investors as a result of changes in market value for US firms that publish the ESG report versus those who do not. According to theory and previous research, this model assumes that the return on an individual stock is linearly related to the market return (Brown and Warner, 1980; Fama et al., 1969; McWilliams and Siegel, 1997). The relationship is expressed as:

$$R_{it} = \alpha_i + \beta_i R_{mkt} + \epsilon_{it}$$

where:

$R_{it}$  is the return of the stock for firm  $i$ , at time  $t$ , available from Yahoo.Finance and Bloomberg or any other source.;

$R_{mkt}$  is the return for the overall market portfolio at time  $t$ , as defined by the CRSP (Centre for Research in Stock Prices) equally weighted stock market index, in this case it was chosen S&P 500 stock;

$\alpha_i$  and  $\beta_i$  are firm-specific and time-independent parameters obtained by longitudinally regressing 221 trading days of stock price data for firm  $i$  on the market portfolio during the estimation period of 3 days prior to the event date (reason for choosing 221 trading days will be explained in next subsection);

$\epsilon_{it}$  is a normally distributed, zero mean, constant variance error term for stock  $i$  at time  $t$ .

The key part of event study methodology is calculating the CAR – cumulative abnormal returns. The calculation CAR is as follows:

$$NR_{it} = \alpha_i + \beta_i R_{mt}$$

$$AR_{it} = NR_{it} - R_{it}$$

$$CAR_{t1,t2} = \sum_{t1}^{t2} AR_{it}$$

where:

$NR$  is the normal return

$AR$  is abnormal return

$CAR$  is cumulative abnormal return

$t$  is time

Event methodology has always had different interesting aspects of research to it. Among other topics, finance scholars have discussed which expected return models should be used as well as the appropriate length of the estimation and event window. With regard to the assumptions underlying the methodology, several issues were discussed, such as infrequent trading of the underlying stocks (Cable and Holland, 1999). Based on the expected return models they are grouped into statistical models (CAMP, Market Adjusted Model, Market Model with Scholes-Williams beta estimation, etc.) and economic models (Fama-French 3 factor model, and Fama-French-Momentum 4 Factor model).

Recent meta research (Holler, 2014) finds that the market model is the predominantly used model for predicted normal returns. From Sample of 400 analysed event studies, 79.1% of the studies used the “market model”, 13.3% drew on the “market adjusted return model”, 3.3% the “constant mean return model”, 3.6% “multi-factor models” and only 0.7% deployed the CAPM model. Thus, after carefully analysing the previous researches and their methodologies, it was deemed to also use the market model as the benchmark expected return model.

### 4.3 Event Anchor and Window



There is no definite rule on the length of an event study's estimation and event windows. The challenge posed is to find a balance in the trade-off between improved estimation accuracy and potential parameter shifts. Longer estimation windows promise greater accuracy, as they imply larger samples of returns, however, they also bear the risk of covering structural breaks (e.g. due to confounding events) of the  $\alpha$  and  $\beta$  factors, which will lead to biased estimations. This research has chosen to have the estimation window of 221 trading days and the event window of 5 days. The estimation window was cut off 3 days prior to the event.

The estimation window and event window was the same for all events in the analysis. The whole event study was conducted in Excel and then in Stata following procedures and formulas in Simon Benninga's book Financial Modelling (2000,2008).

## 4.4 Variables

A key of all analysis are the variables that are used to determine and test the dependent variable. In this case, the dependent variable was CAR. CAR as the output of event studies has been tested by different explanatory and control variables in different researches. Each variable will be shortly discussed below.

### 4.4.1 Explanatory Variables

#### *Investment in CSR*

This variable is one of the key of the whole analysis as the thesis is based on testing whether firms that invest in CSR have lower CAR than those that do not during crash points of the sample. As mentioned previously this variable was looked at from the perspective of ESG report publishing. If the firm has published an ESG report it would mean that it had invested in CSR.<sup>7</sup> Also, it should have a positive effect on the CAR to be in accordance with the Hypothesis.

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<sup>7</sup> It should be noted, that while firms are encouraged to publish ESG report nowadays, there was no such rule in the past. Hence, Firms might have invested in CSR but didn't publish the report.

### *Industry*

Industry effect has been also looked at by many researches to see how it affected the firm's stock return. In this thesis, the industry was one of the key variables to look at when conducting the further research. As investors look not only at the firms who invest or not in CSR, but also in which industry they operate. There have been many protest by the company workers about the low wages, working conditions, etc. in the past years and urging investors to choose the companies that do not engage in such practices.

### *Internationalization*

The final explanatory variable has also been very useful for past analyses, as it is believed that investors favour firms that have not only domestic but also international assets. Unfortunately, the data for this variable wasn't fully available and because of too many missing entries in all the years of different companies, the sample was reduced significantly and thus, the variable was not included in the further analysis. However, it was believed that the variable should be mentioned, as the missing data became a limitation of the research and it would have been a great addition for the future research in this direction.

#### 4.4.2 Control Variables

The three control variables that were chosen are widely used variables in all researches that have an affect on firm's stock return (McWilliam and Siegel, 2000; Russo and Fouts, 1997; Schnietz & Epstein, 20015).

### *Size*

This variable has been one of the most widely used variables in researches. The size was calculated as the log of the firm's revenues in the respective year. This method has been employed by many researchers, such as Turban and Greening, (1997), Schnietz and Epstein (2005). It is believed to have a positive effect on CAR.

### *Risk*

Risk is calculated as a firm's debt to asset ratio. And should have a negative effect on the models. In addition, there has been a study on relationship between CSR and Firm Risk (Hoje Jo & Haejung Na, 2012) increasing the interest in this control variable for this thesis and using it to test the models.

### *R&D Intensity*

While the above two control variables have been very popular and heavily used to assess the models, R&D intensity was first introduced in Waddock and Grave's (1997) paper where it changed the results materially. It was calculated as a firm's R&D expenditure divided by total sales. The reason for inclusion of this variable is because it is believed that it has long-term effects on the economic performance and is positively correlated with knowledge that the firm acquires, thus enhancing CSR policies of the firm (McWilliams and Siegel, 2000: 604-605).

## 4.5 Models

The models that will be described below are used to assess the significance of the variables explained above on the CAR that would be found in the event study analysis. There have been three models proposed to look at CAR.

### *Model 1*

$$\text{Model 1: } CAR = \beta_0 + Inv_{CSR} + Industry + \varepsilon$$

This model simply looks at only the explanatory variables and wants to check the significance of each variable to the CAR. Ideally, the model should look like this:

$$\text{Model 1a: } CAR = \beta_0 + Inv_{CSR} + Industry + Internationalization + \varepsilon$$

But, due to missing entries in Internationalization the variable was omitted from the analysis.

### *Model 2*

$$\text{Model 2: } CAR = \beta_0 + Inv_{CSR} + Industry + Size + Risk + \varepsilon$$

This model takes a further look on the firm's stock returns adding two control variables into the regression

### **Model 3**

$$\text{Model 3: } CAR = \beta_0 + Inv_{CSR} + Industry + Size + Risk + R\&D\text{Intensity} + \varepsilon$$

The final model looks at all the variables together. The reason why the Model 2 and Model 3 were separated was because it was deemed to check the effect of R&D intensity as a separate model to once again devise the importance of this variable as it was seen from previous studies (McWilliams and Seigel, 2000; Russo and Fouts, 1997; Schientz & Epstein, 2005).

## 5. Results

### 5.1 Event Study

The results of the thesis analysis are summarized in Appendix 4 and Table 3. The table looks only at the top 10 dates of the daily return crashes of S&P 500. This was done for ease of understanding, as all dates are sorted not by year but by their respective daily return decline of the index. From the table 3 and appendix 4 it can be seen that in more than 90% of the events firms that invested in the CSR had less than 1% decline of CAR and the results were not significant, which is consistent with first hypothesis. On the contrary for the firms that didn't invest in CSR the decline was more than 1% and was significant.

*Table 3. Event Analysis of Top 10 Crash Dates in Years 2010-2016*

<b>Event Analysis of Top 10 Crash Dates Years 2010-2016<sup>a</sup></b>			
<i>Event Date</i>		<i>CAR</i>	<i>t-value</i>
08/08/2011	Firms that have published the ESG report	-0.82	-0.88†
	Firms that didn't publish the ESG report	-2.11	-2.26**
04/08/2011	Firms that have published the ESG report	-0.55	-0.59†
	Firms that didn't publish the ESG report	-1.70	-1.82*

18/08/2011	Firms that have published the ESG report	-0.67	-0.72†
	Firms that didn't publish the ESG report	-1.87	-2.00*
10/08/2011	Firms that have published the ESG report	-0.49	-0.52†
	Firms that didn't publish the ESG report	-1.71	-1.83*
24/08/2015	Firms that have published the ESG report	-0.65	-0.70†
	Firms that didn't publish the ESG report	-1.34	-1.43†
20/05/2010	Firms that have published the ESG report	-0.22	-0.24†
	Firms that didn't publish the ESG report	-1.86	-1.99*
09/11/2011	Firms that have published the ESG report	-0.64	-0.68†
	Firms that didn't publish the ESG report	-1.97	-2.11**
24/06/2016	Firms that have published the ESG report	-0.27	-0.29†
	Firms that didn't publish the ESG report	-1.75	-1.87*
04/06/2010	Firms that have published the ESG report	-0.88	-0.94†
	Firms that didn't publish the ESG report	-1.88	-2.01*
06/05/2010	Firms that have published the ESG report	-0.25	-0.27†
	Firms that didn't publish the ESG report	-1.90	-2.03*
a Firm that published ESG report in 2010 n= 178; 2011 n=196; in 2012 n=203; in 2013 n=240, 2014 n=267 , 2015 n=295; 2016 n = 304. t-tests were one tailed and in accordance to the hypothesis † $p < 0.10$ .; * $p < 0.05$ ; ** $p < 0.01$ ; *** $p < 0.001$			

If looked at the very first date of the table, it is the date with the biggest daily decline in the whole sample, thus it will be described more thoroughly here. For the firms that invested in CSR the daily decline was less than 1%, in particular 0.82%, and this result was not significant. As for the firms that didn't invest in CSR the decline was more than 2%, in particular -2.11% and the result was significant. This decline translated in to shareholder loss of \$378ml for an average firm in the sample.

Despite more than 90% of events showing that investing in CSR does lead to small changes compared to the ones who do not, the results of the cumulative abnormal returns (CARs) in Table 3 and Appendix 4 may be result of industry effect. This thesis following researches look-

ing at CSR and firm value or financial performance (Klassen & McLaughlin, 1996; Konar & Cohen, 2001; Russo & Fouts, 1997; Waddock and Graves, 1997; van Tulder and Kolk, 2001).<sup>8</sup> divided the firms into two industry segments.

1. Industries with reputation for “irresponsible” environmental practice, and
2. Industries with reputation for “irresponsible” labour practices.

For the analysis the two-digit standard industrial classification (SIC) codes were obtained both for environmentally “irresponsible” and labour “irresponsible” industries. The codes and industry sample are presented in table 4.

*Table 4 List of Environmentally and Labour “irresponsible” SIC codes*

<b>Environmentally “Irresponsible”</b>		<b>Labour “Irresponsible”</b>	
<i>Code</i>	<i>Name</i>	<i>Code</i>	<i>Name</i>
10	Iron mining	23	Apparel manufacture
12	Coal mining	31	Footwear manufacture
13	Oil and Gas extraction	39	Toy manufacture
14	Non-metallic mining		
28	Chemicals		
30	Rubber and Plastic manufacture		
33	Steel		
46	Petroleum pipelines		
49	Eclectic and gas utilities		

<sup>8</sup> These researches looked at links between investments in “green” manufacturing and financial performance, or “Labor-abusing” industries.

The results of the analysis, which are presented in table 5 and appendix 5, are not only consistent with results in table 3, but also enhance them. The sample was divided into 2 main segments – Firms in labour and environmentally “irresponsible” industries and Firms in labour and environmentally “clean” industries. Similar to description of the table 3, this thesis divided the results into two tables for ease of understanding for the reader. Table 5 similar to table 3 only presents top 10 events analysis of the sample while appendix presents all of the dates in the analysis.

*Table 5 Results of Event Analysis Segmented by Industry of Top 10 Crash Dates in Years 2010-2016*

<b>Event Analysis Segmented by Industry of Top 10 Crash Dates Years 2010-2016</b>			
<i>Event Date</i>		<i>CAR</i>	<i>t-value</i>
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>		
	Firms that have published the ESG report	-1.09	-1.17†
08/08/2011	Firms that didn't publish the ESG report	-3.02	-3.23***
	<i>Firms in Labour and Environmentally "clean" industries</i>		
	Firms that have published the ESG report	-0.72	-0.77†
	Firms that didn't publish the ESG report	-1.69	-1.81*
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>		
	Firms that have published the ESG report	-0.54	-0.58†
04/08/2011	Firms that didn't publish the ESG report	-1.76	-1.88*
	<i>Firms in Labour and Environmentally "clean" industries</i>		
	Firms that have published the ESG report	-0.36	-0.38†
	Firms that didn't publish the ESG report	-1.74	-1.86*
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>		
	Firms that have published the ESG report	-0.28	-0.30†
18/08/2011	Firms that didn't publish the ESG report	-1.56	-1.67*
	<i>Firms in Labour and Environmentally "clean" industries</i>		
	Firms that have published the ESG report	-0.30	-0.32†
	Firms that didn't publish the ESG report	-1.87	-2.00*
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>		
10/08/2011	Firms that have published the ESG report	-0.36	-0.38†

	Firms that didn't publish the ESG report	-1.67	-1.79*
	<i>Firms in Labour and Environmentally "clean" industries</i>		
	Firms that have published the ESG report	-0.58	-0.62†
	Firms that didn't publish the ESG report	-1.65	-1.77*
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>		
	Firms that have published the ESG report	-0.80	-0.86†
24/08/2015	Firms that didn't publish the ESG report	-1.11	-1.19†
	<i>Firms in Labour and Environmentally "clean" industries</i>		
	Firms that have published the ESG report	-0.67	-0.72†
	Firms that didn't publish the ESG report	-1.15	-1.23†
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>		
	Firms that have published the ESG report	-0.45	-0.48†
20/05/2010	Firms that didn't publish the ESG report	-1.59	-1.70*
	<i>Firms in Labour and Environmentally "clean" industries</i>		
	Firms that have published the ESG report	-0.38	-0.41†
	Firms that didn't publish the ESG report	-1.58	-1.69*
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>		
	Firms that have published the ESG report	-0.81	-0.86†
09/11/2011	Firms that didn't publish the ESG report	-1.75	-1.87*
	<i>Firms in Labour and Environmentally "clean" industries</i>		
	Firms that have published the ESG report	-0.54	-0.58†
	Firms that didn't publish the ESG report	-1.68	-1.80*
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>		
	Firms that have published the ESG report	-0.74	-0.79†
24/06/2016	Firms that didn't publish the ESG report	-1.72	-1.84*
	<i>Firms in Labour and Environmentally "clean" industries</i>		
	Firms that have published the ESG report	-0.67	-0.72†
	Firms that didn't publish the ESG report	-1.67	-1.79*
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>		
04/06/2010	Firms that have published the ESG report	-0.67	-0.72†
	Firms that didn't publish the ESG report	-1.87	-2.00*



06/05/2010	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.44	-0.47†	
	Firms that didn't publish the ESG report	-1.65	-1.77*	
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.68	-0.73†	
	Firms that didn't publish the ESG report	-1.89	-2.02*	
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.41	-0.44†	
	Firms that didn't publish the ESG report	-1.78	-1.90*	
	a Firm that published ESG report in 2010 n= 178; 2011 n=196; in 2012 n=203; in 2013 n=240, 2014 n=267 , 2015 n= 295; 2016 n = 304. Firms in the "irresponsible" industry n=231; t-tests were one tailed and in accordance to the hypothesis † $p < 0.10$ .; * $p < 0.05$ ; ** $p < 0.01$ ; *** $p < 0.001$			

If looked at the first date as was looked previously, it can be seen that in both samples the companies that invested into CSR had lower and not significant decline, while firms that didn't invest in CSR have a significant decline. The biggest decline was in the "irresponsible" industry segment of -3.23%, which translated into shareholder loss of \$498ml of an average firm in the sample.

Furthermore, the thesis wanted to also test for the possibility of a trade effect, however, due to many missing entries the event couldn't be fully conducted, which is one of the limitations of this thesis.

## 5.2 Regression

To further enhance the results of the thesis and event study analysis, it was deemed to employ OLS regression to further determine which of the variables described in chapter 4.4 best explain the CAR of the event analysis.

This thesis has used ESG scores to assess investments in corporate social responsibility, contrary to other researches that use a KLD rating. Kinder, Lydenberg and Domini (KLD) is a well established assessment of firm's social performance (Sharfman, 1996). This rating has been used in many previous empirical researches that focused on measuring CSR investments and their

effects on different firm aspects (Abramson & Chung, 2000; Dawkins, 2002; Hillman and Keim, 2001; Waddock and Graves, 1997). However, in the past few years using ESG score has become also another method to evaluate CSR. As mentioned previously, ESG is scored from 0 to 100, and the variable was transferred into a dummy variable showing simply whether the firm invested in CSR (1) or didn't (0).

First of all, it is important to explain, that the analysis wasn't conducted on each individual date, and rather it was conducted on overall CAAR (Cumulative Average Abnormal Returns) of each year. And as the most events were clustered in 2011, the regression analysis was conducted on year 2011. CAAR was obtained by the formula:

$$CAAR_{t_1,t_2} = \sum_{t_1}^{t_2} CAR_{it}$$

The thesis incorporated the following three widely used control variables that are said to have a significant affect on the firm's stock return (McWilliams & Siegel, 2000; Russo and Fouts, 1997) - Size, Risk and R&D intensity. The reason and calculation of each of these variables was presented in Chapter 4.4. Table 6 presents the descriptive statistics.

*Table 6 Means, Standard Deviations and Correlations*

<b>Means, Standard Deviations and Correlations</b> <sup>a</sup>							
<i>Variable</i>	<i>Mean</i>	<i>s.d.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1 Investment in Corporate Social Responsibility	0.41	0.49					
2 Industry	0.31	0.48	-0.22***	0.09†			
3 Size	9.78	0.89	0.13*	0.21***	-0.12*		
4 Risk	0.34	0.18	-0.23***	-0.17*	0.18**	-0.18**	
5 R&D intensity	0.04	0.06	0.03	0.31***	0.19**	0.11	-0.38***

a n=460 for variables 1, 2, 3 and 5; n= 437 for variable 4  
†  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

The thesis tested three models. Model 1 included the explanatory variables – Investment in CSR, Industry. Model 2 added two control variables – Size and Risk, and finally Model 3 included R&D intensity.

Results of the regression analysis can be found in Table 7. According to the minor hypothesis<sup>9</sup> and consistent with the results of the event analyses, CSR was positively and significantly correlated with a firm's stock return in all three models. From the table it can be seen that firm's CSR is much stronger when R&D intensity is not included in the analysis. However, inclusion of R&D intensity improves the  $R^2$  of the model estimates.

*Table 7 Results of Regression for Cumulative Average Abnormal Returns*

<b>Results of Regression for Cumulative Average Abnormal Returns (CAAR)</b>			
<i>Variable</i>	<i>Model 1a</i>	<i>Model 2b</i>	<i>Model 3b</i>
Intercept	-0.049** (0.019)	-0.097*** (0.031)	-0.083** (0.039)
CSR	0.013* (0.008)	0.015** (0.008)	0.021*** (0.009)
Industry	-0.009 (0.006)	-0.006 (0.006)	-0.004 (0.007)
Size		0.007* (0.004)	0.006 (0.005)
Risk		-0.009 (0.016)	-0.039 (0.026)
R&D Intensity			-0.142* (0.059)
$R^2$	0.039	0.058	0.172
F	3.680**	3.190***	5.050***
a n=460, Standard errors are in parentheses, t-tests were one-tailed in accordance with the hypotheses.			

<sup>9</sup> The hypothesis that were discussed when explaining the control variables in Chapter 4.

b n=437 due to the missing data, primarily for missing entries in Risk variable. Standard errors are in parentheses; t-tests were one-tailed in accordance with the hypotheses.  
 †  $p < 0.10$ .; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

In conclusion, the results of the regression provide further additional support that investments in CSR can act as buffer for firms during the crisis periods, i.e. crash points. It can be assumed that investors favour firms that invest in CSR more than those that do not.

## 6. Discussion and Conclusion

From the March flash report, it is seen that stakeholder demand for greater social corporate responsibility is rising, and managers are responding to this rise (*New York Times*, 2002; *3BL Media*, 2018). It is also notable that strategy scholars are recognising more and more the impact of intangible assets such as corporate reputation (Barney and Hansen, 1994; Kaplan and Norton, 1996; Teece, 1998). This thesis combined literature from different aspects of CSR, as well as managerial trend ideas to examine the benefits of investing in CSR on stock returns during daily crisis points.

This thesis looked at the sample of daily returns over 6 years in S&P 500 stock, and determined top dates when the index return dropped tremendously. According to the results of the analysis it was seen that investments in CSR indeed could act as a buffer during those crisis points (crash dates). Though the results were not significant for the companies that did invest in CSR, it wasn't the same for ones who did not. Leading to the final assumption that importance of investment in CSR is not overrated but indeed gives the firm's shareholders and investors guarantee in the company during the crisis periods.

The results of the thesis add to the existing literature in terms of looking at CSR investments in a new methodology i.e. checking the ESG scores instead of KLD scores, as well as looking at the recent sample of the daily returns. The thesis also contributes to the existing literature on the topic of "doing-good-leads-to-good-results-to-the-firm", as well as adding to the

Stakeholder theory research. Making the efforts of the managers to persuade the BOD to invest in CSR not in vain, and giving them another proof that such investments lead to favourable outcome for company's return, not only in crisis periods but also in good periods as well.

As all researches, this thesis also has its limitations in terms of data and thus for future research it should be valuable to check it with the data on the foreign and domestic assets of each firm, as well as conduct the research with the past 2 years' data included. It is also possible to conduct the future research with KLD scores of the companies to check the results and also look at the 2018-year data, as this year the index has been very volatile especially in the first quarter of the year, when many huge daily return declines have been spotted. One key advantage as well as a limitation of the research is that it was conducted on firms that were part of the S&P 500 index, i.e. the whole sample was US based. For future research it would be interesting to combine the researches from all over the world, and conduct the research on the whole world sample, checking how investment in CSR affects firms worldwide during crisis periods.

To conclude, this thesis has found the positive link between investment in CSR and crisis periods. Leading to accepting the hypothesis that firms that invest in CSR have significantly lower return decline during crisis periods than those that didn't. Hence, investment in CSR does act as a "buffer" for firms.

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## Appendix

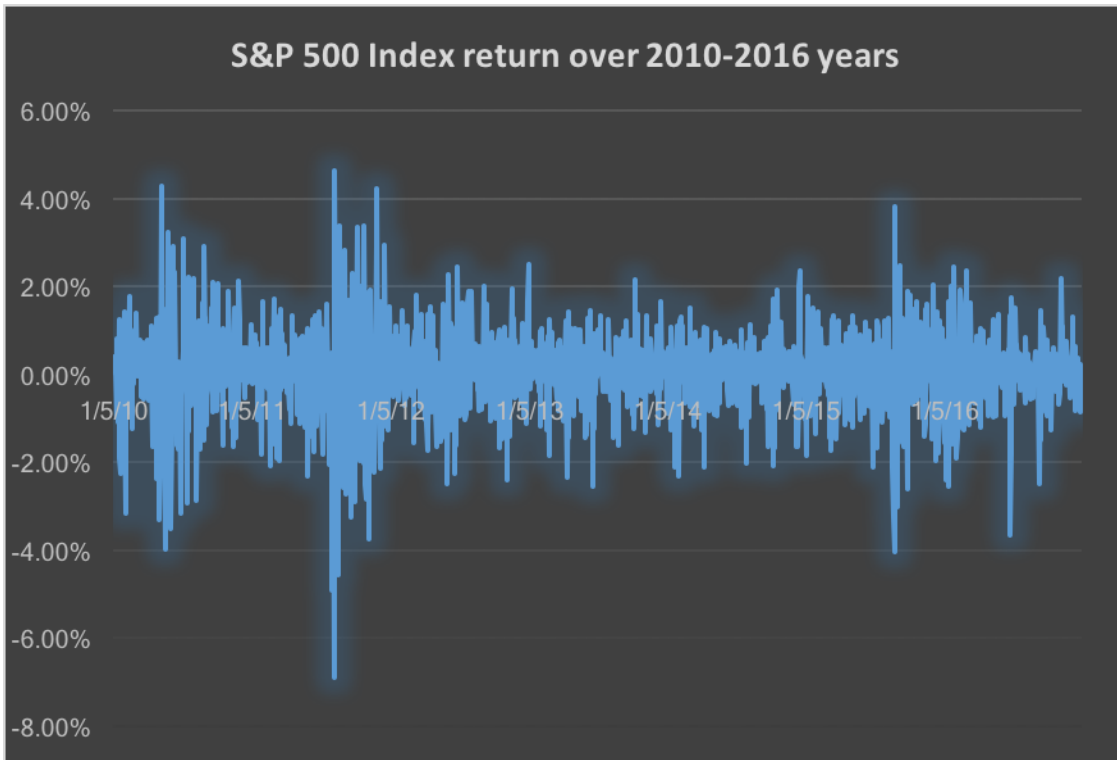
**Appendix 1** – List of Bottom and Top 5% of S&P 500 returns over years 2010-2016. Used as event dates to study.

Bottom 5% of returns		Top 5% of returns	
Crash Date Points		Increase Date Points	
<i>Date</i>	<i>Return</i>	<i>Date</i>	<i>Return</i>
08/08/2011	-6.90%	09/08/2011	4.63%
04/08/2011	-4.90%	11/08/2011	4.53%
18/08/2011	-4.56%	10/05/2010	4.30%
10/08/2011	-4.52%	30/11/2011	4.24%
24/08/2015	-4.02%	26/08/2015	3.83%
20/05/2010	-3.98%	23/08/2011	3.37%
09/11/2011	-3.74%	27/10/2011	3.37%
24/06/2016	-3.66%	10/10/2011	3.36%
04/06/2010	-3.50%	27/05/2010	3.23%
06/05/2010	-3.29%	07/07/2010	3.09%
22/09/2011	-3.24%	20/12/2011	2.94%
21/08/2015	-3.24%	10/06/2010	2.91%
04/02/2010	-3.16%	01/09/2010	2.91%
29/06/2010	-3.15%	28/11/2011	2.88%
01/09/2015	-3.00%	07/09/2011	2.82%
21/09/2011	-2.98%	29/08/2011	2.79%
16/07/2010	-2.92%	02/06/2010	2.55%
03/10/2011	-2.89%	02/01/2013	2.51%
11/08/2010	-2.86%	08/09/2015	2.48%
01/11/2011	-2.83%	29/06/2012	2.46%
09/09/2011	-2.71%	29/01/2016	2.45%
28/09/2015	-2.60%	27/08/2015	2.40%
02/08/2011	-2.59%	18/12/2014	2.37%
02/09/2011	-2.56%	01/03/2016	2.36%
30/09/2011	-2.53%	15/06/2010	2.32%
20/06/2013	-2.53%	26/09/2011	2.31%
13/01/2016	-2.53%	06/06/2012	2.28%
31/10/2011	-2.50%	22/07/2010	2.23%
01/06/2012	-2.50%	04/10/2011	2.22%
09/09/2016	-2.48%	07/11/2016	2.20%
04/05/2010	-2.41%	02/08/2010	2.18%
07/11/2012	-2.40%	15/08/2011	2.16%
07/01/2016	-2.40%	10/10/2013	2.16%
27/04/2010	-2.37%	01/12/2010	2.14%

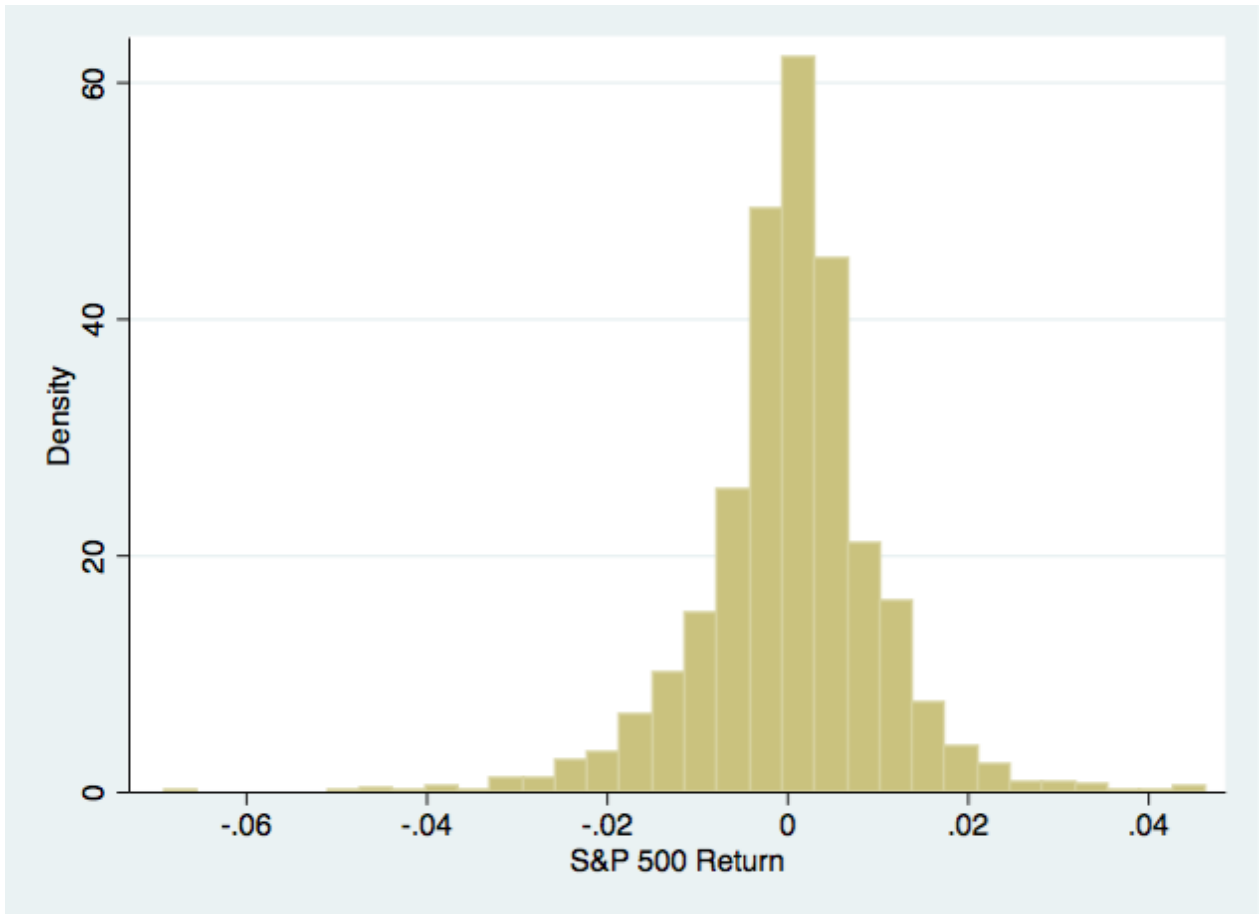
15/04/2013	-2.32%	24/09/2010	2.10%
03/02/2014	-2.31%	05/10/2010	2.06%
01/06/2011	-2.30%	04/12/2015	2.03%
21/06/2012	-2.25%	18/10/2011	2.02%
22/01/2010	-2.24%	06/09/2012	2.02%
23/11/2011	-2.23%	17/12/2014	2.01%
15/01/2016	-2.18%	22/01/2016	2.01%
08/12/2011	-2.14%	19/11/2012	1.97%
20/08/2015	-2.13%	21/10/2014	1.94%
24/01/2014	-2.11%	11/11/2011	1.93%
10/04/2014	-2.11%	12/02/2016	1.93%
29/06/2015	-2.11%	04/11/2010	1.91%
28/09/2011	-2.09%	27/07/2012	1.89%
09/10/2014	-2.09%	03/08/2012	1.89%
22/02/2011	-2.07%	30/09/2015	1.89%
27/07/2011	-2.05%	21/10/2011	1.86%
25/10/2011	-2.02%	03/11/2011	1.86%
31/07/2014	-2.02%	06/10/2011	1.81%
16/03/2011	-1.97%	02/09/2015	1.81%
17/10/2011	-1.96%	05/10/2015	1.81%
11/12/2015	-1.96%	13/03/2012	1.80%
10/03/2011	-1.91%	16/02/2010	1.78%
21/01/2010	-1.91%	05/10/2011	1.77%
14/05/2010	-1.90%	08/01/2015	1.77%
02/02/2016	-1.89%	28/06/2016	1.76%
21/11/2011	-1.88%	08/10/2014	1.73%
05/02/2016	-1.87%	14/10/2011	1.72%
25/02/2013	-1.85%	03/03/2011	1.71%
05/01/2015	-1.84%	15/09/2011	1.70%
11/07/2011	-1.83%	29/06/2016	1.69%
27/06/2016	-1.83%	31/12/2012	1.68%
28/01/2011	-1.80%	09/12/2011	1.67%
18/12/2015	-1.80%	01/02/2011	1.66%
15/06/2011	-1.76%	14/01/2016	1.66%
01/06/2010	-1.73%	27/08/2010	1.65%
10/04/2012	-1.72%	18/12/2013	1.65%
19/08/2010	-1.71%	22/10/2015	1.65%
10/03/2015	-1.71%	13/07/2012	1.64%
24/06/2010	-1.69%	26/07/2012	1.64%
17/11/2011	-1.69%	16/02/2016	1.64%
30/04/2010	-1.68%	17/02/2016	1.63%
16/11/2011	-1.68%	11/03/2016	1.63%
08/07/2015	-1.68%	19/07/2011	1.62%

19/10/2012	-1.67%	13/09/2012	1.62%
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Appendix 2 – Returns over years 2010-2016 of S&P 500



Appendix 3 – Histogram of return distribution of S&P 500 in years 2010-2016



## Appendix 4 – All event date analysis of Crash Dates years 2010-2016

## Event Analysis of all Crash Dates Years 2010-2016

<i>Event Date</i>		<i>CAR</i>	<i>t-value</i>	<i>p- value</i>
08/08/2011	Firms that have published the ESG report	-0.82	-0.88	0.19061
	Firms that didn't publish the ESG report	-2.11	-2.26	0.01247
04/08/2011	Firms that have published the ESG report	-0.55	-0.59	0.27840
	Firms that didn't publish the ESG report	-1.70	-1.82	0.03514
18/08/2011	Firms that have published the ESG report	-0.67	-0.72	0.23710
	Firms that didn't publish the ESG report	-1.87	-2.00	0.02332
10/08/2011	Firms that have published the ESG report	-0.49	-0.52	0.30030
	Firms that didn't publish the ESG report	-1.71	-1.83	0.03432
24/08/2015	Firms that have published the ESG report	-0.65	-0.70	0.24374
	Firms that didn't publish the ESG report	-1.34	-1.43	0.07652
20/05/2010	Firms that have published the ESG report	-0.22	-0.24	0.40706
	Firms that didn't publish the ESG report	-1.86	-1.99	0.02390
09/11/2011	Firms that have published the ESG report	-0.64	-0.68	0.24710
	Firms that didn't publish the ESG report	-1.97	-2.11	0.01809
24/06/2016	Firms that have published the ESG report	-0.27	-0.29	0.38646
	Firms that didn't publish the ESG report	-1.75	-1.87	0.03123
04/06/2010	Firms that have published the ESG report	-0.88	-0.94	0.17372
	Firms that didn't publish the ESG report	-1.88	-2.01	0.02274
06/05/2010	Firms that have published the ESG report	-0.25	-0.27	0.39467
	Firms that didn't publish the ESG report	-1.90	-2.03	0.02163
22/09/2011	Firms that have published the ESG report	-0.87	-0.93	0.17646
	Firms that didn't publish the ESG report	-1.99	-2.13	0.01717
21/08/2015	Firms that have published the ESG report	-0.21	-0.22	0.41121
	Firms that didn't publish the ESG report	-1.45	-1.55	0.06111
04/02/2010	Firms that have published the ESG report	-0.48	-0.51	0.30402
	Firms that didn't publish the ESG report	-2.12	-2.27	0.01214
29/06/2010	Firms that have published the ESG report	-0.41	-0.44	0.33065
	Firms that didn't publish the ESG report	-1.73	-1.85	0.03275

01/09/2015	Firms that have published the ESG report	-0.49	-0.52	0.30030
	Firms that didn't publish the ESG report	-1.69	-1.81	0.03596
21/09/2011	Firms that have published the ESG report	-0.95	-1.02	0.15525
	Firms that didn't publish the ESG report	-2.32	-2.48	0.00690
16/07/2010	Firms that have published the ESG report	-0.64	-0.68	0.24710
	Firms that didn't publish the ESG report	-2.01	-2.15	0.01630
03/10/2011	Firms that have published the ESG report	-0.61	-0.65	0.25732
	Firms that didn't publish the ESG report	-1.85	-1.98	0.02450
11/08/2010	Firms that have published the ESG report	-0.41	-0.44	0.33065
	Firms that didn't publish the ESG report	-1.67	-1.79	0.03767
01/11/2011	Firms that have published the ESG report	-0.69	-0.74	0.23056
	Firms that didn't publish the ESG report	-1.96	-2.10	0.01856
09/09/2011	Firms that have published the ESG report	-0.35	-0.37	0.35420
	Firms that didn't publish the ESG report	-1.56	-1.67	0.04825
28/09/2015	Firms that have published the ESG report	-0.42	-0.45	0.32679
	Firms that didn't publish the ESG report	-1.45	-1.55	0.06111
02/08/2011	Firms that have published the ESG report	-0.36	-0.39	0.35023
	Firms that didn't publish the ESG report	-1.70	-1.82	0.03514
02/09/2011	Firms that have published the ESG report	-0.03	-0.03	0.48721
	Firms that didn't publish the ESG report	-1.23	-1.32	0.09476
30/09/2011	Firms that have published the ESG report	-0.39	-0.42	0.33843
	Firms that didn't publish the ESG report	-1.78	-1.90	0.02907
20/06/2013	Firms that have published the ESG report	-0.20	-0.21	0.41537
	Firms that didn't publish the ESG report	-1.31	-1.40	0.08121
13/01/2016	Firms that have published the ESG report	-0.13	-0.14	0.44475
	Firms that didn't publish the ESG report	-1.67	-1.79	0.03767
31/10/2011	Firms that have published the ESG report	-0.02	-0.02	0.49147
	Firms that didn't publish the ESG report	-1.12	-1.20	0.11603
01/06/2012	Firms that have published the ESG report	-0.05	-0.05	0.47869
	Firms that didn't publish the ESG report	-1.13	-1.21	0.11396
09/09/2016	Firms that have published the ESG report	-0.14	-0.15	0.44053



	Firms that didn't publish the ESG report	-1.45	-1.55	0.06111
04/05/2010	Firms that have published the ESG report	-0.06	-0.06	0.47443
	Firms that didn't publish the ESG report	-1.18	-1.26	0.10403
07/11/2012	Firms that have published the ESG report	-0.30	-0.32	0.37426
	Firms that didn't publish the ESG report	-1.78	-1.90	0.02907
07/01/2016	Firms that have published the ESG report	-0.53	-0.57	0.28561
	Firms that didn't publish the ESG report	-1.89	-2.02	0.02218
27/04/2010	Firms that have published the ESG report	-0.04	-0.04	0.48295
	Firms that didn't publish the ESG report	-1.00	-1.07	0.14290
15/04/2013	Firms that have published the ESG report	-0.22	-0.24	0.40706
	Firms that didn't publish the ESG report	-1.73	-1.85	0.03275
03/02/2014	Firms that have published the ESG report	-0.37	-0.40	0.34628
	Firms that didn't publish the ESG report	-1.65	-1.77	0.03943
01/06/2011	Firms that have published the ESG report	-0.01	-0.01	0.49574
	Firms that didn't publish the ESG report	-0.87	-0.93	0.17646
21/06/2012	Firms that have published the ESG report	-0.05	-0.05	0.47869
	Firms that didn't publish the ESG report	-1.67	-1.79	0.03767
22/01/2010	Firms that have published the ESG report	-0.32	-0.34	0.36619
	Firms that didn't publish the ESG report	-1.72	-1.84	0.03353
23/11/2011	Firms that have published the ESG report	-0.15	-0.16	0.43632
	Firms that didn't publish the ESG report	-1.10	-1.18	0.12023
15/01/2016	Firms that have published the ESG report	-0.07	-0.07	0.47018
	Firms that didn't publish the ESG report	-1.03	-1.10	0.13581
08/12/2011	Firms that have published the ESG report	-0.11	-0.12	0.45321
	Firms that didn't publish the ESG report	-1.45	-1.55	0.06111
20/08/2015	Firms that have published the ESG report	-0.24	-0.26	0.39879
	Firms that didn't publish the ESG report	-1.03	-1.10	0.13581
24/01/2014	Firms that have published the ESG report	-0.37	-0.40	0.34628
	Firms that didn't publish the ESG report	-1.76	-1.88	0.03050
10/04/2014	Firms that have published the ESG report	-0.50	-0.54	0.29660
	Firms that didn't publish the ESG report	-1.87	-2.00	0.02332

29/06/2015	Firms that have published the ESG report	-0.27	-0.29	0.38646
	Firms that didn't publish the ESG report	-1.56	-1.67	0.04825
28/09/2011	Firms that have published the ESG report	-0.09	-0.10	0.46168
	Firms that didn't publish the ESG report	-1.14	-1.22	0.11192
09/10/2014	Firms that have published the ESG report	-0.03	-0.03	0.48934
	Firms that didn't publish the ESG report	-1.02	-1.09	0.13815
22/02/2011	Firms that have published the ESG report	-0.27	-0.29	0.38646
	Firms that didn't publish the ESG report	-1.43	-1.53	0.06371
27/07/2011	Firms that have published the ESG report	-0.04	-0.04	0.48295
	Firms that didn't publish the ESG report	-1.35	-1.44	0.07501
25/10/2011	Firms that have published the ESG report	-0.06	-0.06	0.47443
	Firms that didn't publish the ESG report	-1.33	-1.42	0.07806
31/07/2014	Firms that have published the ESG report	-0.55	-0.59	0.27840
	Firms that didn't publish the ESG report	-1.87	-2.00	0.02332
16/03/2011	Firms that have published the ESG report	-0.38	-0.41	0.34235
	Firms that didn't publish the ESG report	-1.23	-1.32	0.09476
17/10/2011	Firms that have published the ESG report	-0.16	-0.17	0.43211
	Firms that didn't publish the ESG report	-1.17	-1.25	0.10597
11/12/2015	Firms that have published the ESG report	-0.07	-0.07	0.47018
	Firms that didn't publish the ESG report	-0.67	-0.72	0.23710
10/03/2011	Firms that have published the ESG report	-0.22	-0.24	0.40706
	Firms that didn't publish the ESG report	-1.58	-1.69	0.04616
21/01/2010	Firms that have published the ESG report	-0.33	-0.35	0.36218
	Firms that didn't publish the ESG report	-1.65	-1.77	0.03943
14/05/2010	Firms that have published the ESG report	-0.31	-0.33	0.37022
	Firms that didn't publish the ESG report	-1.76	-1.88	0.03050
02/02/2016	Firms that have published the ESG report	-0.24	-0.26	0.39879
	Firms that didn't publish the ESG report	-1.15	-1.23	0.10991
21/11/2011	Firms that have published the ESG report	-0.23	-0.25	0.40292
	Firms that didn't publish the ESG report	-1.69	-1.81	0.03596
05/02/2016	Firms that have published the ESG report	-0.21	-0.22	0.41121

	Firms that didn't publish the ESG report	-1.32	-1.41	0.07962
25/02/2013	Firms that have published the ESG report	-0.44	-0.47	0.31913
	Firms that didn't publish the ESG report	-1.78	-1.90	0.02907
05/01/2015	Firms that have published the ESG report	-0.35	-0.37	0.35420
	Firms that didn't publish the ESG report	-1.73	-1.85	0.03275
11/07/2011	Firms that have published the ESG report	-0.42	-0.45	0.32679
	Firms that didn't publish the ESG report	-1.75	-1.87	0.03123
27/06/2016	Firms that have published the ESG report	-0.10	-0.11	0.45744
	Firms that didn't publish the ESG report	-1.01	-1.08	0.14051
28/01/2011	Firms that have published the ESG report	-0.19	-0.20	0.41954
	Firms that didn't publish the ESG report	-1.02	-1.09	0.13815
18/12/2015	Firms that have published the ESG report	-0.44	-0.47	0.31913
	Firms that didn't publish the ESG report	-1.45	-1.55	0.06111
15/06/2011	Firms that have published the ESG report	-0.18	-0.19	0.42372
	Firms that didn't publish the ESG report	-1.11	-1.19	0.11812
01/06/2010	Firms that have published the ESG report	-0.07	-0.07	0.47018
	Firms that didn't publish the ESG report	-1.05	-1.12	0.13122
10/04/2012	Firms that have published the ESG report	-0.15	-0.16	0.43632
	Firms that didn't publish the ESG report	-1.42	-1.52	0.06505
19/08/2010	Firms that have published the ESG report	-0.30	-0.32	0.37426
	Firms that didn't publish the ESG report	-1.68	-1.80	0.03681
10/03/2015	Firms that have published the ESG report	-0.37	-0.40	0.34628
	Firms that didn't publish the ESG report	-1.59	-1.70	0.04515
24/06/2010	Firms that have published the ESG report	-0.40	-0.43	0.33453
	Firms that didn't publish the ESG report	-1.36	-1.46	0.07352
17/11/2011	Firms that have published the ESG report	-0.04	-0.04	0.48295
	Firms that didn't publish the ESG report	-0.67	-0.72	0.23710
30/04/2010	Firms that have published the ESG report	-0.12	-0.13	0.44897
	Firms that didn't publish the ESG report	-1.13	-1.21	0.11396
16/11/2011	Firms that have published the ESG report	-0.08	-0.09	0.46593
	Firms that didn't publish the ESG report	-1.21	-1.29	0.09839

08/07/2015	Firms that have published the ESG report	-0.27	-0.29	0.38646
	Firms that didn't publish the ESG report	-1.04	-1.11	0.13350
19/10/2012	Firms that have published the ESG report	-0.21	-0.22	0.41121
	Firms that didn't publish the ESG report	-1.42	-1.52	0.06505

a Firm that published ESG report in 2010 n= 178; 2011 n=196; in 2012 n=203; in 2013 n=240, 2014 n=267 , 2015 n= 295; 2016 n = 304. t-tests were one tailed and in accordance to the hypothesis

## Appendix 5 – Industry effect

### Event Analysis segmented by industry of all Crash Dates Years 2010-2016

<i>Event Date</i>		<i>CAR</i>	<i>t-value</i>	<i>p- value</i>
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
08/08/2011	Firms that have published the ESG report	-1.09	-1.17	0.12237
	Firms that didn't publish the ESG report	-3.02	-3.23	0.00071
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.72	-0.77	0.22085
	Firms that didn't publish the ESG report	-1.69	-1.81	0.03568
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
04/08/2011	Firms that have published the ESG report	-0.54	-0.58	0.28253
	Firms that didn't publish the ESG report	-1.76	-1.88	0.03071
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.36	-0.38	0.35146
	Firms that didn't publish the ESG report	-1.74	-1.86	0.03213
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
18/08/2011	Firms that have published the ESG report	-0.28	-0.30	0.38259
	Firms that didn't publish the ESG report	-1.56	-1.67	0.04825
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.30	-0.32	0.37453
	Firms that didn't publish the ESG report	-1.87	-2.00	0.02331
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
10/08/2011	Firms that have published the ESG report	-0.36	-0.38	0.35049
	Firms that didn't publish the ESG report	-1.67	-1.79	0.03766

	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.58	-0.62	0.26649
	Firms that didn't publish the ESG report	-1.65	-1.77	0.03943
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.80	-0.86	0.19582
24/08/2015	Firms that didn't publish the ESG report	-1.11	-1.19	0.11811
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.67	-0.72	0.23709
	Firms that didn't publish the ESG report	-1.15	-1.23	0.10991
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.45	-0.48	0.31531
20/05/2010	Firms that didn't publish the ESG report	-1.59	-1.70	0.04514
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.38	-0.41	0.34189
	Firms that didn't publish the ESG report	-1.58	-1.69	0.04616
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.81	-0.86	0.19412
09/11/2011	Firms that didn't publish the ESG report	-1.75	-1.87	0.03123
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.54	-0.58	0.28114
	Firms that didn't publish the ESG report	-1.68	-1.80	0.03680
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.74	-0.79	0.21403
24/06/2016	Firms that didn't publish the ESG report	-1.72	-1.84	0.03352
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.67	-0.72	0.23709
	Firms that didn't publish the ESG report	-1.67	-1.79	0.03766
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.67	-0.72	0.23709
04/06/2010	Firms that didn't publish the ESG report	-1.87	-2.00	0.02353
	<i>Firms in Labour and Environmentally "clean" industries</i>			

	Firms that have published the ESG report	-0.44	-0.47	0.31838
	Firms that didn't publish the ESG report	-1.65	-1.77	0.03943
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.68	-0.73	0.23227
06/05/2010	Firms that didn't publish the ESG report	-1.89	-2.02	0.02217
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.41	-0.44	0.33175
	Firms that didn't publish the ESG report	-1.78	-1.90	0.02906
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.80	-0.86	0.19666
22/09/2011	Firms that didn't publish the ESG report	-1.64	-1.75	0.04034
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.30	-0.32	0.37618
	Firms that didn't publish the ESG report	-1.63	-1.74	0.04126
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.88	-0.94	0.174550
21/08/2015	Firms that didn't publish the ESG report	-1.93	-2.06	0.020217
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-1.79	-1.92	0.028375
	Firms that didn't publish the ESG report	-0.74	-0.80	0.213675
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.44	-0.47	0.319190
04/02/2010	Firms that didn't publish the ESG report	-1.81	-1.94	0.027031
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.86	-0.92	0.17939
	Firms that didn't publish the ESG report	-1.78	-1.90	0.02906
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.86	-0.92	0.17911
29/06/2010	Firms that didn't publish the ESG report	-1.75	-1.87	0.03123
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.67	-0.72	0.23670

	Firms that didn't publish the ESG report	-2.94	-3.15	0.00094
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.50	-0.53	0.29676
01/09/2015	Firms that didn't publish the ESG report	-2.05	-2.19	0.01478
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.57	-0.61	0.27233
	Firms that didn't publish the ESG report	-1.77	-1.89	0.02977
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.84	-0.89	0.18602
21/09/2011	Firms that didn't publish the ESG report	-1.73	-1.85	0.03274
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.19	-0.20	0.41952
	Firms that didn't publish the ESG report	-1.88	-2.01	0.02274
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.02	-0.02	0.49144
16/07/2010	Firms that didn't publish the ESG report	-1.76	-1.88	0.03049
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.60	-0.64	0.26027
	Firms that didn't publish the ESG report	-1.75	-1.87	0.03160
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.41	-0.44	0.33129
03/10/2011	Firms that didn't publish the ESG report	-1.61	-1.72	0.04312
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.61	-0.66	0.25638
	Firms that didn't publish the ESG report	-1.65	-1.77	0.03937
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.21	-0.22	0.41163
11/08/2010	Firms that didn't publish the ESG report	-1.56	-1.67	0.04825
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.78	-0.84	0.20226
	Firms that didn't publish the ESG report	-1.88	-2.01	0.02274

	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.89	-0.95	0.17114
01/11/2011	Firms that didn't publish the ESG report	-1.79	-1.92	0.02837
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.78	-0.83	0.20281
	Firms that didn't publish the ESG report	-1.54	-1.65	0.05041
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.77	-0.82	0.20551
09/09/2011	Firms that didn't publish the ESG report	-1.64	-1.76	0.04023
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.89	-0.95	0.17200
	Firms that didn't publish the ESG report	-1.63	-1.74	0.04126
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.54	-0.58	0.28028
28/09/2015	Firms that didn't publish the ESG report	-1.97	-2.11	0.01808
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.48	-0.52	0.30312
	Firms that didn't publish the ESG report	-1.88	-2.01	0.02274
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.27	-0.29	0.38507
02/08/2011	Firms that didn't publish the ESG report	-1.98	-2.11	0.01784
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.16	-0.17	0.43259
	Firms that didn't publish the ESG report	-1.90	-2.03	0.02163
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.19	-0.21	0.41882
02/09/2011	Firms that didn't publish the ESG report	-1.69	-1.81	0.03611
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-1.00	-1.07	0.14391
	Firms that didn't publish the ESG report	-1.65	-1.77	0.03943
30/09/2011	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			



	Firms that have published the ESG report	-0.48	-0.52	0.30344
	Firms that didn't publish the ESG report	-1.77	-1.89	0.02977
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.61	-0.65	0.25673
	Firms that didn't publish the ESG report	-1.69	-1.81	0.03596
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
20/06/2013	Firms that have published the ESG report	-0.01	-0.01	0.49554
	Firms that didn't publish the ESG report	-1.68	-1.80	0.03649
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.54	-0.58	0.28156
	Firms that didn't publish the ESG report	-1.55	-1.66	0.04941
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
13/01/2016	Firms that have published the ESG report	-0.82	-0.88	0.18993
	Firms that didn't publish the ESG report	-1.92	-2.05	0.02059
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.76	-0.82	0.20721
	Firms that didn't publish the ESG report	-1.78	-1.90	0.02906
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
31/10/2011	Firms that have published the ESG report	-0.96	-1.03	0.15257
	Firms that didn't publish the ESG report	-1.99	-2.13	0.01717
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.96	-1.03	0.15224
	Firms that didn't publish the ESG report	-1.72	-1.84	0.03352
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
01/06/2012	Firms that have published the ESG report	-0.69	-0.73	0.23175
	Firms that didn't publish the ESG report	-1.78	-1.90	0.02906
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.63	-0.67	0.25036
	Firms that didn't publish the ESG report	-1.65	-1.77	0.03943
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
09/09/2016	Firms that have published the ESG report	-0.67	-0.72	0.23648

	Firms that didn't publish the ESG report	-1.88	-2.01	0.02283
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.54	-0.58	0.28027
	Firms that didn't publish the ESG report	-1.62	-1.73	0.04212
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.75	-0.81	0.21038
04/05/2010	Firms that didn't publish the ESG report	-1.80	-1.93	0.02770
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.48	-0.51	0.30416
	Firms that didn't publish the ESG report	-1.72	-1.84	0.03352
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-1.16	-1.25	0.107101
07/11/2012	Firms that didn't publish the ESG report	-1.57	-1.68	0.04670
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.74	-0.79	0.21577
	Firms that didn't publish the ESG report	-1.55	-1.66	0.04932
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-1.00	-1.07	0.14390
07/01/2016	Firms that didn't publish the ESG report	-1.82	-1.95	0.02637
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.24	-0.26	0.39781
	Firms that didn't publish the ESG report	-1.80	-1.93	0.02769
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.48	-0.52	0.30259
27/04/2010	Firms that didn't publish the ESG report	-1.86	-1.99	0.02390
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.35	-0.37	0.35560
	Firms that didn't publish the ESG report	-1.81	-1.94	0.02703
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
15/04/2013	Firms that have published the ESG report	-0.92	-0.99	0.16247
	Firms that didn't publish the ESG report	-1.91	-2.04	0.02108

	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.83	-0.88	0.18893
	Firms that didn't publish the ESG report	-1.87	-2.00	0.02331
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.94	-1.00	0.15830
03/02/2014	Firms that didn't publish the ESG report	-1.86	-1.99	0.02390
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.70	-0.74	0.22888
	Firms that didn't publish the ESG report	-1.81	-1.94	0.027031
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.67	-0.72	0.23709
01/06/2011	Firms that didn't publish the ESG report	-1.60	-1.71	0.044152
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.35	-0.37	0.35557
	Firms that didn't publish the ESG report	-1.58	-1.69	0.04616
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.88	-0.94	0.17312
21/06/2012	Firms that didn't publish the ESG report	-1.76	-1.88	0.03049
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.83	-0.89	0.18819
	Firms that didn't publish the ESG report	-1.68	-1.80	0.03680
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.89	-0.95	0.17099
22/01/2010	Firms that didn't publish the ESG report	-1.91	-2.04	0.02108
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.87	-0.93	0.17666
	Firms that didn't publish the ESG report	-1.83	-1.96	0.02574
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.67	-0.72	0.23709
23/11/2011	Firms that didn't publish the ESG report	-1.73	-1.85	0.03274
	<i>Firms in Labour and Environmentally "clean" industries</i>			

	Firms that have published the ESG report	-0.64	-0.68	0.24709
	Firms that didn't publish the ESG report	-1.64	-1.75	0.04034
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.53	-0.57	0.28614
15/01/2016	Firms that didn't publish the ESG report	-1.85	-1.98	0.02450
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.45	-0.48	0.31648
	Firms that didn't publish the ESG report	-1.72	-1.84	0.03352
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.85	-0.90	0.18337
08/12/2011	Firms that didn't publish the ESG report	-1.71	-1.83	0.03432
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.76	-0.81	0.20849
	Firms that didn't publish the ESG report	-1.68	-1.80	0.03680
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.34	-0.37	0.35763
20/08/2015	Firms that didn't publish the ESG report	-1.57	-1.68	0.04719
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.29	-0.31	0.37831
	Firms that didn't publish the ESG report	-1.54	-1.65	0.05041
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.37	-0.39	0.34794
24/01/2014	Firms that didn't publish the ESG report	-1.66	-1.78	0.03854
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.28	-0.30	0.38238
	Firms that didn't publish the ESG report	-1.64	-1.75	0.04034
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.75	-0.80	0.21126
10/04/2014	Firms that didn't publish the ESG report	-1.71	-1.83	0.0343
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.55	-0.59	0.27814

	Firms that didn't publish the ESG report	-1.59	-1.70	0.04514
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.50	-0.54	0.29630
29/06/2015	Firms that didn't publish the ESG report	-1.79	-1.92	0.02837
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.32	-0.34	0.36618
	Firms that didn't publish the ESG report	-1.62	-1.73	0.04221
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.83	-0.89	0.18674
28/09/2011	Firms that didn't publish the ESG report	-1.87	-2.00	0.02331
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.40	-0.43	0.33477
	Firms that didn't publish the ESG report	-1.66	-1.78	0.03854
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.97	-1.04	0.14903
09/10/2014	Firms that didn't publish the ESG report	-1.98	-2.12	0.01762
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.82	-0.88	0.18997
	Firms that didn't publish the ESG report	-1.76	-1.88	0.03049
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.43	-0.46	0.32294
22/02/2011	Firms that didn't publish the ESG report	-1.79	-1.92	0.02837
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.33	-0.35	0.36365
	Firms that didn't publish the ESG report	-1.61	-1.72	0.04317
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.66	-0.71	0.23888
27/07/2011	Firms that didn't publish the ESG report	-1.80	-1.93	0.02769
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.45	-0.48	0.31531
	Firms that didn't publish the ESG report	-1.59	-1.70	0.04514

	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.59	-0.63	0.26391
25/10/2011	Firms that didn't publish the ESG report	-1.83	-1.96	0.02574
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.18	-0.19	0.42402
	Firms that didn't publish the ESG report	-1.75	-1.87	0.03123
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.20	-0.21	0.41513
31/07/2014	Firms that didn't publish the ESG report	-1.77	-1.89	0.02977
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.06	-0.07	0.47317
	Firms that didn't publish the ESG report	-1.65	-1.77	0.03943
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.30	-0.32	0.37310
16/03/2011	Firms that didn't publish the ESG report	-1.88	-2.01	0.02274
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.13	-0.14	0.44391
	Firms that didn't publish the ESG report	-1.67	-1.79	0.03766
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.78	-0.83	0.20242
17/10/2011	Firms that didn't publish the ESG report	-1.92	-2.05	0.02055
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.52	-0.55	0.29103
	Firms that didn't publish the ESG report	-1.71	-1.83	0.03432
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.37	-0.40	0.34628
11/12/2015	Firms that didn't publish the ESG report	-1.71	-1.83	0.03432
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.24	-0.26	0.39878
	Firms that didn't publish the ESG report	-1.62	-1.73	0.04221
10/03/2011	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			

	Firms that have published the ESG report	-0.40	-0.43	0.33453
	Firms that didn't publish the ESG report	-1.69	-1.81	0.03596
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.34	-0.36	0.3584
	Firms that didn't publish the ESG report	-1.60	-1.71	0.04415
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
21/01/2010	Firms that have published the ESG report	-0.31	-0.33	0.3722
	Firms that didn't publish the ESG report	-1.75	-1.87	0.0312
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.26	-0.28	0.3905
	Firms that didn't publish the ESG report	-1.62	-1.73	0.04221
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
14/05/2010	Firms that have published the ESG report	-0.37	-0.39	0.34676
	Firms that didn't publish the ESG report	-1.69	-1.81	0.03596
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.22	-0.24	0.40705
	Firms that didn't publish the ESG report	-1.57	-1.68	0.04719
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
02/02/2016	Firms that have published the ESG report	-0.69	-0.74	0.23130
	Firms that didn't publish the ESG report	-1.74	-1.86	0.03198
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.20	-0.21	0.41731
	Firms that didn't publish the ESG report	-1.62	-1.73	0.04221
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
21/11/2011	Firms that have published the ESG report	-0.10	-0.11	0.45597
	Firms that didn't publish the ESG report	-1.67	-1.79	0.03766
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.09	-0.09	0.46268
	Firms that didn't publish the ESG report	-1.55	-1.66	0.04932
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
05/02/2016	Firms that have published the ESG report	-0.74	-0.79	0.21507

	Firms that didn't publish the ESG report	-1.82	-1.95	0.02637
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.19	-0.20	0.41987
	Firms that didn't publish the ESG report	-1.75	-1.87	0.0312
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.79	-0.85	0.19943
25/02/2013	Firms that didn't publish the ESG report	-1.92	-2.05	0.02055
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.65	-0.70	0.24296
	Firms that didn't publish the ESG report	-1.76	-1.88	0.03049
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.71	-0.76	0.22417
05/01/2015	Firms that didn't publish the ESG report	-1.90	-2.03	0.02162
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.63	-0.68	0.2499
	Firms that didn't publish the ESG report	-1.82	-1.95	0.02637
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.99	-1.06	0.14429
11/07/2011	Firms that didn't publish the ESG report	-1.79	-1.92	0.02837
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.31	-0.33	0.36945
	Firms that didn't publish the ESG report	-1.65	-1.77	0.03943
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.46	-0.49	0.31138
27/06/2016	Firms that didn't publish the ESG report	-1.70	-1.82	0.03513
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.46	-0.49	0.31227
	Firms that didn't publish the ESG report	-1.70	-1.82	0.03513
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
28/01/2011	Firms that have published the ESG report	-0.88	-0.94	0.17371
	Firms that didn't publish the ESG report	-1.90	-2.03	0.02162



	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.67	-0.71	0.23806
	Firms that didn't publish the ESG report	-1.78	-1.90	0.02906
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.62	-0.66	0.25436
18/12/2015	Firms that didn't publish the ESG report	-1.82	-1.95	0.02637
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.15	-0.16	0.43649
	Firms that didn't publish the ESG report	-1.69	-1.81	0.03596
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.64	-0.68	0.24834
15/06/2011	Firms that didn't publish the ESG report	-1.89	-2.02	0.02217
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.51	-0.54	0.29369
	Firms that didn't publish the ESG report	-1.79	-1.92	0.02837
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.75	-0.81	0.21057
01/06/2010	Firms that didn't publish the ESG report	-1.90	-2.03	0.02162
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.01	-0.01	0.49652
	Firms that didn't publish the ESG report	-1.78	-1.90	0.02906
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.22	-0.24	0.40668
10/04/2012	Firms that didn't publish the ESG report	-1.79	-1.92	0.02837
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.21	-0.23	0.40985
	Firms that didn't publish the ESG report	-1.70	-1.82	0.03513
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.25	-0.27	0.39401
19/08/2010	Firms that didn't publish the ESG report	-1.73	-1.85	0.03274
	<i>Firms in Labour and Environmentally "clean" industries</i>			

	Firms that have published the ESG report	-0.22	-0.24	0.4070
	Firms that didn't publish the ESG report	-1.62	-1.73	0.04221
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.74	-0.79	0.21524
10/03/2015	Firms that didn't publish the ESG report	-1.81	-1.94	0.02703
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.55	-0.59	0.27840
	Firms that didn't publish the ESG report	-1.72	-1.84	0.03352
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.92	-0.99	0.16283
24/06/2010	Firms that didn't publish the ESG report	-1.90	-2.03	0.02162
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.67	-0.72	0.23709
	Firms that didn't publish the ESG report	-1.59	-1.70	0.04514
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.56	-0.60	0.2746
17/11/2011	Firms that didn't publish the ESG report	-1.62	-1.73	0.04221
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.14	-0.15	0.4409
	Firms that didn't publish the ESG report	-1.57	-1.68	0.04719
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.43	-0.46	0.3235
30/04/2010	Firms that didn't publish the ESG report	-1.74	-1.86	0.03198
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.02	-0.02	0.49283
	Firms that didn't publish the ESG report	-1.66	-1.78	0.03854
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.42	-0.45	0.32538
16/11/2011	Firms that didn't publish the ESG report	-1.84	-1.97	0.02511
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.42	-0.45	0.32575

	Firms that didn't publish the ESG report	-1.68	-1.80	0.03680
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.89	-0.95	0.17125
08/07/2015	Firms that didn't publish the ESG report	-1.89	-2.02	0.02217
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.51	-0.55	0.29157
	Firms that didn't publish the ESG report	-1.74	-1.86	0.03198
	<i>Firms in Labour and Environmentally "irresponsible" industries</i>			
	Firms that have published the ESG report	-0.89	-0.95	0.17168
19/10/2012	Firms that didn't publish the ESG report	-1.76	-1.88	0.03045
	<i>Firms in Labour and Environmentally "clean" industries</i>			
	Firms that have published the ESG report	-0.76	-0.82	0.2078
	Firms that didn't publish the ESG report	-1.69	-1.80	0.03626

a Firm that published ESG report in 2010 n= 178; 2011 n=196; in 2012 n=203; in 2013 n=240, 2014 n=267 , 2015 n= 295; 2016 n = 304.  
Firms in the irresponsible industry n=231; t-tests were one tailed and in accordance to the hypothesis

Appendix 6 – All event date analysis of rise in years 2010-2016.

#### Event Analysis of all Top 5% Increase Dates in Years 2010-2016

<i>Event Date</i>		<i>CAR</i>	<i>t-value</i>	<i>p-value</i>
09/08/2011	Firms that have published the ESG report	0.75	0.81	0.21056
	Firms that didn't publish the ESG report	0.48	0.51	0.30413
11/08/2011	Firms that have published the ESG report	0.28	0.30	0.38128
	Firms that didn't publish the ESG report	0.26	0.28	0.39084
10/05/2010	Firms that have published the ESG report	0.94	1.01	0.15667
	Firms that didn't publish the ESG report	0.25	0.27	0.39363
30/11/2011	Firms that have published the ESG report	0.25	0.27	0.39442
	Firms that didn't publish the ESG report	0.16	0.18	0.43009
26/08/2015	Firms that have published the ESG report	0.07	0.07	0.47045
	Firms that didn't publish the ESG report	0.64	0.69	0.24614
23/08/2011	Firms that have published the ESG report	0.58	0.62	0.26690
	Firms that didn't publish the ESG report	0.23	0.24	0.40411
27/10/2011	Firms that have published the ESG report	0.53	0.56	0.28740
	Firms that didn't publish the ESG report	0.67	0.72	0.23623
10/10/2011	Firms that have published the ESG report	0.48	0.52	0.30307
	Firms that didn't publish the ESG report	0.82	0.88	0.18958
27/05/2010	Firms that have published the ESG report	0.24	0.26	0.39900

	Firms that didn't publish the ESG report	0.90	0.96	0.16899
07/07/2010	Firms that have published the ESG report	0.54	0.58	0.28234
	Firms that didn't publish the ESG report	0.46	0.49	0.31096
20/12/2011	Firms that have published the ESG report	0.32	0.34	0.36629
	Firms that didn't publish the ESG report	0.86	0.92	0.17803
10/06/2010	Firms that have published the ESG report	0.57	0.61	0.27244
	Firms that didn't publish the ESG report	0.95	1.02	0.15462
01/09/2010	Firms that have published the ESG report	0.51	0.55	0.29269
	Firms that didn't publish the ESG report	0.28	0.30	0.38268
28/11/2011	Firms that have published the ESG report	0.20	0.22	0.41473
	Firms that didn't publish the ESG report	0.08	0.09	0.46560
07/09/2011	Firms that have published the ESG report	0.39	0.42	0.33822
	Firms that didn't publish the ESG report	0.67	0.71	0.23799
29/08/2011	Firms that have published the ESG report	0.94	1.01	0.15675
	Firms that didn't publish the ESG report	0.23	0.25	0.40196
02/06/2010	Firms that have published the ESG report	0.77	0.82	0.20692
	Firms that didn't publish the ESG report	0.59	0.63	0.26532
02/01/2013	Firms that have published the ESG report	0.13	0.14	0.44336
	Firms that didn't publish the ESG report	0.39	0.42	0.33747
08/09/2015	Firms that have published the ESG report	0.80	0.85	0.19758
	Firms that didn't publish the ESG report	0.77	0.83	0.20504
29/06/2012	Firms that have published the ESG report	0.38	0.41	0.34253
	Firms that didn't publish the ESG report	0.14	0.15	0.44049
29/01/2016	Firms that have published the ESG report	0.22	0.23	0.40844
	Firms that didn't publish the ESG report	0.94	1.01	0.15754
27/08/2015	Firms that have published the ESG report	0.57	0.61	0.26991
	Firms that didn't publish the ESG report	0.07	0.07	0.47021
18/12/2014	Firms that have published the ESG report	0.67	0.72	0.23696
	Firms that didn't publish the ESG report	0.89	0.95	0.17099
01/03/2016	Firms that have published the ESG report	0.69	0.74	0.23147
	Firms that didn't publish the ESG report	0.38	0.40	0.34390
15/06/2010	Firms that have published the ESG report	0.84	0.90	0.18401
	Firms that didn't publish the ESG report	0.30	0.32	0.37410
26/09/2011	Firms that have published the ESG report	0.30	0.32	0.37387
	Firms that didn't publish the ESG report	0.58	0.62	0.26760
06/06/2012	Firms that have published the ESG report	0.48	0.51	0.30502
	Firms that didn't publish the ESG report	0.07	0.08	0.46967
22/07/2010	Firms that have published the ESG report	0.17	0.18	0.42837
	Firms that didn't publish the ESG report	0.76	0.81	0.20838
04/10/2011	Firms that have published the ESG report	0.34	0.36	0.35919
	Firms that didn't publish the ESG report	0.24	0.26	0.39834
07/11/2016	Firms that have published the ESG report	0.52	0.55	0.29103
	Firms that didn't publish the ESG report	0.45	0.49	0.31403

02/08/2010	Firms that have published the ESG report	0.69	0.74	0.22929
	Firms that didn't publish the ESG report	0.27	0.29	0.38540
15/08/2011	Firms that have published the ESG report	0.69	0.74	0.22979
	Firms that didn't publish the ESG report	0.99	1.06	0.14486
10/10/2013	Firms that have published the ESG report	0.07	0.07	0.47197
	Firms that didn't publish the ESG report	0.61	0.65	0.25828
01/12/2010	Firms that have published the ESG report	0.09	0.10	0.46145
	Firms that didn't publish the ESG report	0.22	0.23	0.40787
24/09/2010	Firms that have published the ESG report	0.38	0.41	0.34235
	Firms that didn't publish the ESG report	0.97	1.03	0.15118
05/10/2010	Firms that have published the ESG report	0.30	0.32	0.37392
	Firms that didn't publish the ESG report	0.19	0.20	0.41982
04/12/2015	Firms that have published the ESG report	0.61	0.66	0.25611
	Firms that didn't publish the ESG report	0.08	0.09	0.46488
18/10/2011	Firms that have published the ESG report	0.19	0.20	0.42046
	Firms that didn't publish the ESG report	0.93	1.00	0.16037
06/09/2012	Firms that have published the ESG report	0.17	0.18	0.42891
	Firms that didn't publish the ESG report	0.55	0.58	0.27989
17/12/2014	Firms that have published the ESG report	0.89	0.95	0.17106
	Firms that didn't publish the ESG report	0.10	0.11	0.45699
22/01/2016	Firms that have published the ESG report	0.48	0.51	0.30494
	Firms that didn't publish the ESG report	0.74	0.80	0.21353
19/11/2012	Firms that have published the ESG report	0.49	0.53	0.29925
	Firms that didn't publish the ESG report	0.79	0.85	0.19898
21/10/2014	Firms that have published the ESG report	0.94	1.00	0.15905
	Firms that didn't publish the ESG report	0.22	0.23	0.40880
11/11/2011	Firms that have published the ESG report	0.40	0.43	0.33428
	Firms that didn't publish the ESG report	0.26	0.28	0.39025
12/02/2016	Firms that have published the ESG report	0.28	0.30	0.38081
	Firms that didn't publish the ESG report	0.75	0.80	0.21130
04/11/2010	Firms that have published the ESG report	0.36	0.38	0.35137
	Firms that didn't publish the ESG report	1.00	1.06	0.14406
27/07/2012	Firms that have published the ESG report	0.14	0.15	0.44151
	Firms that didn't publish the ESG report	0.18	0.19	0.42499
03/08/2012	Firms that have published the ESG report	0.54	0.58	0.28171
	Firms that didn't publish the ESG report	0.35	0.37	0.35551
30/09/2015	Firms that have published the ESG report	0.35	0.37	0.35554
	Firms that didn't publish the ESG report	0.78	0.83	0.20293
21/10/2011	Firms that have published the ESG report	0.52	0.55	0.29082
	Firms that didn't publish the ESG report	0.71	0.76	0.22326
03/11/2011	Firms that have published the ESG report	0.42	0.45	0.32534
	Firms that didn't publish the ESG report	0.28	0.30	0.38186
06/10/2011	Firms that have published the ESG report	0.20	0.22	0.41340

	Firms that didn't publish the ESG report	0.44	0.47	0.32043
02/09/2015	Firms that have published the ESG report	0.04	0.04	0.48469
	Firms that didn't publish the ESG report	0.78	0.83	0.20362
05/10/2015	Firms that have published the ESG report	0.19	0.20	0.42035
	Firms that didn't publish the ESG report	0.27	0.29	0.38581
13/03/2012	Firms that have published the ESG report	0.23	0.24	0.40458
	Firms that didn't publish the ESG report	0.64	0.69	0.24691
16/02/2010	Firms that have published the ESG report	0.11	0.11	0.45444
	Firms that didn't publish the ESG report	0.39	0.41	0.33979
05/10/2011	Firms that have published the ESG report	0.29	0.31	0.37740
	Firms that didn't publish the ESG report	0.43	0.46	0.32229
08/01/2015	Firms that have published the ESG report	0.40	0.42	0.33574
	Firms that didn't publish the ESG report	0.80	0.85	0.19703
28/06/2016	Firms that have published the ESG report	0.86	0.92	0.17980
	Firms that didn't publish the ESG report	0.64	0.69	0.24557
08/10/2014	Firms that have published the ESG report	0.05	0.05	0.47924
	Firms that didn't publish the ESG report	0.90	0.96	0.16899
14/10/2011	Firms that have published the ESG report	0.37	0.40	0.34579
	Firms that didn't publish the ESG report	0.78	0.84	0.20132
03/03/2011	Firms that have published the ESG report	1.00	1.07	0.14329
	Firms that didn't publish the ESG report	0.43	0.46	0.32329
15/09/2011	Firms that have published the ESG report	0.71	0.76	0.22513
	Firms that didn't publish the ESG report	0.10	0.11	0.45590
29/06/2016	Firms that have published the ESG report	0.13	0.14	0.44629
	Firms that didn't publish the ESG report	0.27	0.29	0.38465
31/12/2012	Firms that have published the ESG report	0.32	0.34	0.36539
	Firms that didn't publish the ESG report	0.10	0.11	0.45677
09/12/2011	Firms that have published the ESG report	0.20	0.22	0.41492
	Firms that didn't publish the ESG report	0.44	0.47	0.31862
01/02/2011	Firms that have published the ESG report	0.70	0.75	0.22770
	Firms that didn't publish the ESG report	0.36	0.38	0.35080
14/01/2016	Firms that have published the ESG report	0.61	0.66	0.25592
	Firms that didn't publish the ESG report	0.15	0.16	0.43811
27/08/2010	Firms that have published the ESG report	0.52	0.56	0.28857
	Firms that didn't publish the ESG report	0.20	0.21	0.41631
18/12/2013	Firms that have published the ESG report	1.00	1.07	0.14372
	Firms that didn't publish the ESG report	0.38	0.41	0.34080
22/10/2015	Firms that have published the ESG report	0.69	0.74	0.23058
	Firms that didn't publish the ESG report	0.21	0.22	0.41168
13/07/2012	Firms that have published the ESG report	0.00	0.00	0.49969
	Firms that didn't publish the ESG report	0.64	0.68	0.24829
26/07/2012	Firms that have published the ESG report	0.59	0.63	0.26415
	Firms that didn't publish the ESG report	0.87	0.93	0.17657

16/02/2016	Firms that have published the ESG report	0.95	1.02	0.15473
	Firms that didn't publish the ESG report	0.67	0.72	0.23719
17/02/2016	Firms that have published the ESG report	0.62	0.66	0.25520
	Firms that didn't publish the ESG report	0.70	0.75	0.22678
11/03/2016	Firms that have published the ESG report	0.63	0.67	0.25170
	Firms that didn't publish the ESG report	0.75	0.80	0.21209
19/07/2011	Firms that have published the ESG report	0.64	0.69	0.24687
	Firms that didn't publish the ESG report	0.76	0.82	0.20697
13/09/2012	Firms that have published the ESG report	0.16	0.17	0.43412
	Firms that didn't publish the ESG report	0.63	0.67	0.25080

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a Firm that published ESG report in 2010 n= 178; 2011 n=196; in 2012 n=203; in 2013 n=240, 2014 n=267 , 2015 n= 295; 2016 n = 304. t-tests were one tailed and in accordance to the hypothesis