# THE SHORT AND LONG TERM ANALYSIS OF THE STOCK PRICE REACTION TO CSR ANNOUNCEMENTS: EVIDENCE FROM U.S NON-FINANCIALLY CONSTRAINED COMPANIES

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# ABSTRACT

This research examines the effect of corporate social responsibility (CSR) and irresponsibility (CSI) announcements on the stock returns of U.S large that constitute the S&P 500 index during 2002-2012. The sample size is narrowed down by eliminating companies with high financial constraints as measured by the Kaplan-Zingales Index (Kaplan & Zingales, 1997). The analysis comprises of short and long term studies. The short term analysis is studied through event study where the dates of news about CSR and CSI are utilized as the event dates. The sample size for this study consists of 374 news obtained from major online and printed news sources. The result shows that both news about CSR and CSI yield a negative reaction from the shareholders, but that of CSR is weaker. The long term study, on the other hand, is assessed through double-sorting and multivariate regression with the sample size consisting of 304 companies. The result shows that the CSR practices negatively impacts the stock returns in 2 years following their completion. These results are consistent with Friedman's view that emphasizes on the issue of wasteful spending and conflict of interests between managers and shareholders (Friedman, 1970). Moreover, the contradictive result as compared to the majority of previous studies, indicates that the market valuation towards CSR conducts varies overtime.

Keywords: CSR, announcements, media, financial constraints

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# I. INTRODUCTION

In recent years, the importance of corporate social responsibility (CSR) has received a major attention in the running of today's business. According to the CSR practices survey run by Pricewaterhouse Coopers (PwC) in 2013, 58% of the respondents (medium to large companies with more than 50 employees and annual turnover of over 5 million euros) find CSR very important in their companies at present time, and 56% agree that it is very important in 5 year time (PwC, 2013). Moreover, the survey also shows that the disclosure of CSR conducts are mostly found among larger companies as depicted by Figure 1 below. Intuitively, the larger the company is, the more stakeholders are involved in the business. On the other hand, larger companies also have the advantage of having more resources to finance their social responsible practices.

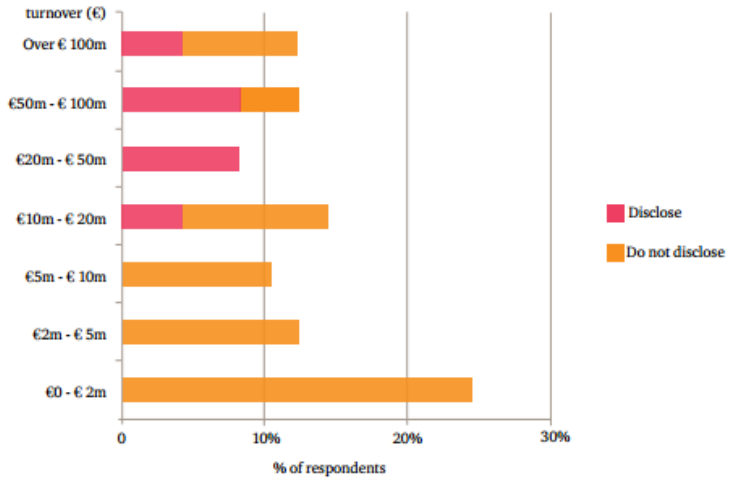


*Figure 1*. Survey of CSR disclosure of companies of different size as measured by annual turnover. Reprinted from *Corporate Social Responsibility Practices Survey* by Pricewaterhouse Coopers, 2013

This research thus aims to evaluate the market valuation towards CSR practices in U.S large companies that constitute the S&P500 index from 2002 to 2012. More specifically, we are interested in the reaction of investors towards companies' social responsibility actions, as reported on the media. We take the aspect of media into account, not only because mass media could reach a wide population of investors, but also because of the idea that news, which is widely published, also mitigates the informational frictions and inevitably affects the security markets (Fang & Peress, 2009).

An increasing number of news regarding companies' social responsible activities is widely reported on the media, either printed or online. Good news, among others, is for instance Coca-

Cola's contribution to environmental movement by unveiling its plastic bottle made partially from plant in 2010. On the other hand, bad news such as Newmont's toxic waste dumping in Buyat Bay, Indonesia in 2007, could not escape from the media coverage. Additionally, not only bad news degrades company's reputation, a huge amount of fine often needs to be settled. In Newmont's case, for instance, 30 million dollars of civil case were settled (James, 2007).

In the world of academic research, opinions are diverged regarding the effect of CSR activities to the financial performance of a company which mostly focuses on the firm profitability. Advocates of the positive effect of CSR on corporate performance are, among others, Pava and Krausz (1996), Preston and O'Bannon (1997), and Ruf, et al. (2001). Moreover, Soloman and Hansen (1985) claims that the costs of CSR activities are more than compensated by the improvement of employee morale and productivity. The second group, on the other hand, supports the opposite relationship. Mackey et al. (2007) finds that CSR reduces the current and future firm's cash flows due to its costliness. Siegel (2009) agrees in this respect, particularly if the firms are involved in CSR activities merely due to the pressure from the society. Lastly, the neutral group, which at least consists of the works of Griffin and Mahon (1997) and McWilliams and Siegel (2001), find a mixed relationship of CSR and company performance, depending on the methodology employed. Margolis and Walsh (2001) then conducted a survey of 95 empirical studies on this issue between 1972 and 2001 and reported that 42 studies found a positive relationship of CSR and financial performance, 19 studies found no relationship, and 4 studies found a negative relationship.

One of the most ubiquitous issues in this field of research, which has not been extensively addressed in the aforementioned papers is the causality between performance and level of CSR. Hong, Kubik, and Scheinkman (2012) then attempt to address this issue by introducing the relationship between CSR level and firm's financial constraint using three proxies, i.e Kaplan-Zingales Index (Kaplan & Zingales, 1997), indicator for whether or not a firm is engaged in share repurchase, and firm's bond rating. Using a rather simple model of firm's choice of capital and goodness, as well as the traditional production function, they hypothesize that less financially constrained firms are likely to spend on goodness. After controlling for both market capitalization and industry-specific effect, they find that the less financially constrained firms spend more on the corporate goodness. To avoid the inference to suffer from other unobserved factors, they observed the change in the spending on corporate goodness after a change in financial constraint level, namely during the Internet bubble[1] period. Their conclusion did not

[1] Also referred to as the Dot-com bubble, which occurred during 1996-2000. This period was marked by the rise of internet-based companies who experienced an increase in their stock prices by simply adding "e-" prefix, or ".com" at the end of their company names. Hong, Kubik, and Scheinkman (2012) argued, however, that Internet bubble also

change which implies that the relationship between CSR level and financial constraint has been established. Given this outcome, we further narrow down our sample to only include non-financially-constrained companies. The current research will then analyse whether the higher level of CSR activity in non-financially constrained companies is priced by the financial market and translated into a higher return. Moreover, unlike the previously mentioned papers which mostly used the accounting performance measures, this paper studies the stock returns which take into account the costs of CSR and allow for risk adjustment, and hence suffer fewer reverse causality (Edmans, 2011).

Moreover, it is also noteworthy to account for the short term effect of firm's goodness on its stock return. Becchetti, Ciciretti, and Hasan (2007) address this issue by conducting an event study to trace the market reaction to corporate entry and exit from Domini 400 Social Index[2] and find that there is a significant negative effect on abnormal returns after company's exit announcement from the index. A similar approach will be used in this research, but instead of only considering firms which constitute an established CSR benchmark index, firms in S&P 500 will be analyzed. Moreover, the event period is defined as the period when a news about company's corporate social responsibility or irresponsibility (CSR or CSI) conduct is publicly released. This choice is based on the major reliance of investors on news and increasing role of the media in financial world (Chan, 2003; Fang & Peress, 2009; Barber & Odean, 2008). Flammer (2012) conducts an event study with the same mechanism as mentioned previously, yet only includes news that covers environmental issues. Unlike Flammer's work, this research includes a broad definition of corporate social responsibility, which embodies the aspects of corporate governance, social, economic, and environmental performance. After excluding firms that have high financial constraints, news about each firm in the new dataset will be individually collected. The date and tone (positive news emphasizes firm's CSR practice and negative news emphasizes firm's CSI practice) is also analysed from each news.

Finally, to serve as a main framework to guide the whole research, the following research question is formulated:

> *What is the effect of corporate social responsibility (CSR) practices of large and non-financially constrained companies in the United States on their stock returns in short and long term during the period of 2002-2012?*

relaxed the financial constraints even for non-technology firms. This assumption was built on the argument of Baker, Stein, and Wurgler (2003) as well as Campello and Graham (2007).

[2] An index constituted by 400 publicly traded companies which meet social and environmental excellence standards.

Since CSR is a dynamic aspect of companies, this line of research needs to be updated over the years. This paper thus contributes to explain the relationship in the most recent period of 2002-2012. Additionally, the current research also provides a rather complete picture of the relationship of interest, since it takes into account both short and long term effects of CSR on the stock returns. The result for the short term study, as analyzed through event study, shows that both CSR and CSI announcements yield a negative reaction from shareholders, but that of CSR is weaker. On the other hand, the long term analysis, which is studied through double-sorting and multivariate regression, shows that a negative impact on the stock returns is also reflected two years after the completion of CSR practices.

The remainder of this paper is organized as follows. The next section will review the past researches that are related to the current research. In section 3 the hypotheses are formulated. In section 4, the data and methodology are elaborated in details. Section 5 describes the results and Section 6 discusses the interpretation of the results. The last section concludes the whole research, with its limitation and suggestion for future researches.

# II. LITERATURE REVIEW

### 2.1 Defining Corporate Social Responsibility

Before the main relationship of interest, namely the CSR and financial performance relationship, is discussed, it is important to first define corporate social responsibility that will be the basis of this whole research. After tracing back the footprints of CSR concept, the research on its modern definition has been widely developed, especially in the past 60 years. In the earlier years, this thought was referred as social responsibility instead of corporate social responsibility, since the business sector in that era had not yet been prominent (Carroll, 1999). The first formal writing on this concept was marked by Howard Bowen's *Social Responsibility of The Businessmen* in 1953. In his book, Bowen (1953) defined CSR as "the obligation of businessmen to pursue the policies and follow the lines of action which adhere to the objectives and values of the society" (p. 6). One decade later, the definition has further developed into incorporating the motivation of doing CSR, as pointed out by Keith Davis (1960). He believed that social responsible business actions will be paid back, since it will most likely bring a long run economic gain to the firm (Davis, 1960). Additionally, Davis (1960) also imposed the *Iron Law of Responsibility*, which states that since social responsibility should be commensurate with social power of the business, the avoidance of it leads to the social power erosion. The point of view which claims that CSR

should be in the interest of firms is also supported by European Commission[3], 40 years later. European Commission (2001) defines CSR as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis". This voluntary basis translates into CSR actions of companies above their legal obligations towards the society and environment (European Commission, 2011). To understand why there should be legal obligations regarding businesses' actions towards the society, Keim (1978) stated that as society changes, the societal constraints on business activity also changes, therefore businesses have to adjust to these changes to at least survive. World Business Council for Sustainable Development (WBCSD)[4], additionally, agrees to this line of thinking. They claim that as global citizens and local neighbours of the fast-changing world, CSR helps companies to live up to their responsibilities (World Business Council for Sustainable Development, 2014).

To conclude, the current research will base the CSR definition to the claim that CSR is the tool for companies, as the citizen of the world, to at least adjust to the ever-changing society. Adhering to the fundamental requirements is legally regulated, but what is more than those requirements is what the society values the most.

### 2.2 Corporate Social Responsibility (CSR) and Corporate Financial Performance (CFP)

At this point, the question that should be asked is why companies would do more than what is required by the law. Back to aforementioned argument, Davis (1960) claimed that CSR will bring economic gain to the firm in the long run. In contrast to this view, Milton Friedman (1970) argued that the social responsibility of a business is to increase its profit. CSR is a costly conduct of a business, therefore it reduces profits and puts shareholders in an unfavourable position. Moreover, Friedman (1970) also emphasized that engaging in CSR might rise the conflict of interests between managers and shareholders[5]. This agency problem which deteriorates firm value was then empirically proven by Wright and Ferris (1997). Barnea and Rubin (2006) also supported this line of argument by claiming that managers engage in CSR activities whose costs exceed the benefits for shareholders because they reap private benefits such as awards and other means of appreciation. Additionally, empirical results on the negative relationship have also been found by, among others, Mackey et al. (2007), and Siegel (2009). Mackey et al. (2007) specified that this negative impact of CSR on the financial performance occurs when there is an

[3] The executive body of European Union who is in charge of proposing legislation, implementing decisions, and representing the interests of EU as a whole.
[4] A global association of 200 international companies which are involved in business and sustainable development. WBCSD, which was founded in 1992 Rio Summit, provides knowledge and a platform for companies to explore sustainable development.
[5] Friedman believes that managers use CSR only to pursue their social, political, and career agendas at shareholders' expense (McWilliams & Siegel, Corporate Social Responsibility: A Theory of The Firm Perspective, 2001).

unbalanced demand and supply of socially responsible investment opportunities, such that the supply exceeds the demand.

As an objection to Friedman's view, Freeman (1984) came up with his Stakeholder Theory, which states that a business should strive, not only for the interest of shareholders, but also for a larger group of stakeholders. Stakeholders here are defined as those parties that can affect or be affected by companies' actions, therefore they include employees, customers, government, suppliers, political groups, and community. Several researches on the extension of this theory have gradually been conducted. Among others, Jones (1995) found that CSR can serve as an instrument to gather more resources and stakeholder support. Moreover, Epstein and Pava (1992) also found that enhanced CSR performance is even in the interest of shareholders themselves.

Another substantial issue on this line of relationship is the causality between CSR and corporate financial performance (CFP). Hong, Kubik, and Scheinkman (2012) found that companies that are less financially constrained spend more on corporate goodness, and established that CFP causes CSR. In contrast, the first research that has successfully established the other way of causality on empirical basis is the one by Flammer (2013). In this research, Flammer (2013) exploited the exogenous variation in CSR in the form of close-call shareholder proposal on CSR, which is uncorrelated to firm performance. Several researches before this, such as Preston and O'Bannon (1997) and Dowell et al. (2000), have also attempted to establish the causality by mainly employing the Granger-causality test[6], but did not succeed to fully reach a conclusion. This current research will take care of this causality issue by only researching those companies with low/no financial constraints. By doing this, we rule out the companies who might conduct CSR for financial motivation. Moreover, this paper will measure the financial performance with respect to stock returns, which are subject to fewer reverse causality problems (Edmans, 2011).

### 2.3 Empirical Evidence of Short Term Relationship between CSR and Stock Returns

Several empirical evidences on the aforementioned relationship have been widely researched. The majority of these researches employ the short-run event study methodology, with various types of events as the determinant of the event date. Capelle-Blancard and Laguna (2010), for instance, used the dates of chemical disaster during 1990-2005 as reported by major newspapers and publications in the world. They found that petrochemical firms suffer from a drop in their market value of 1.3%, two days following the disaster (Capelle-Blancard & Laguna, 2010). On

[6] Granger-causality test is a statistical test on the causality of variable X and Y, which is done through t-tests and F-tests. Variable X is said to Granger-cause Y, if the time series of the lagged values of X have a significant information about the values of Y.

the other hand, Fisher-Vanden and Thorburn (2011) used the announcement date of companies' membership in Environmental Protection Agency (EPA)[7] Climate Leaders, which target a reduction in greenhouse gas emissions. Surprisingly, they found that the announcement produces a significant negative abnormal return around the event date. They argued that this could be due to two things. Firstly, firms tend to join climate leaders because of climate-related shareholder resolutions. Secondly, firms tend to join this program due to weak corporate governance standards that grants managers the discretion to make such voluntary decision. Both of these explanations result in lower firm value (Fisher-Vanden & Thorburn, 2011). In the spirit of mergers and acquisitions research, Aktas , De Bodt, and Cousin (2011) found that stock market rewards the acquirer that announces an acquisition of environmentally aware target. Additionally, the environmental and social performance of the acquirer also increases following such acquisition (Aktas, De Bodt, & Cousin, 2011). On the more news-related researches, Flammer (2012) and Kruger (2013) both examined the news regarding corporate social responsibility published on the media. However, while Flammer (2012) focused only on the environmental news, Krueger (2013) broadened the perspective into every aspect of CSR reported by KLD Socrates and KLD Newsletter. The results of the two researches also slightly differ. Flammer (2012) found that positive news generates a positive reaction on the stock market, and negative news a negative reaction. Kruger (2013), on the other hand, found that both news produce a negative reaction, but that of positive news is weaker and less systematic. The current research corresponds to certain extent to that of Kruger's (2013), but not only it includes a longer and more recent time period, it also takes into account broader means of media, including major printed and online news published locally and nationally. Moreover, this paper seeks to establish the relationship among firms which are financially capable of implementing CSR conducts.

### 2.4 Empirical Evidence of Long Term Relationship between CSR and Stock Returns

Some researchers also have examined the long term performance of both socially responsible and socially irresponsible companies. In particular, Hong and Kacperczyk (2009) observed the long term financial performance of "sin" companies, which are defined as publicly traded companies involved in producing alcohol, tobacco, and gaming. Their result showed that the expected returns of such stocks are higher than otherwise comparable stocks. Their reasoning was that these stocks were neglected by norm-constrained investors, hence facing higher litigation risk[8]. They also claimed that the neglect of these stocks affected their cost of capital significantly (Hong & Kacperczyk, 2009). Statman and Glushkov (2009) then broadened the classification of "sin"

[7] EPA is the agency of US Federal Government which enforces regulations with respect to health and environmental issues, based on laws passed by the Congress (EPA, 2014).
[8] The likelihood that a legal action will be taken due to corporate's conduct.

companies into including companies in association with firearms, military, and nuclear operations, which were then called "shunned" companies. Nevertheless, a similar result was also found. On the more general classification, Eccles, Ioannou, and Serafeim (2013) examined companies which voluntarily adopted environmental and social policies. He concluded that these companies outperform their counterparts in the long run in terms of stock market and accounting performance (Eccles, Ioannou, & Serafeim, 2013).

## III. HYPOTHESES

Subscribing to Friedman's claim on the agency problem involved in CSR implementation, the negative relationship between CSR and stock returns is expected. However, one of the most prevalent opposing views is that of Freeman (1984), which is widely-known as Stakeholder Theory. Freeman postulates that the satisfaction of the interests of a broader group of stakeholders is instrumental to company's financial performance. Given that CSR improves firm's financial performance, shareholders should react positively to the announcement of CSR initiation. Moreover, from the perspective of shareholders themselves, some non-financial aspects of corporate conducts have also been demanded since 1960s (Schueth, 2003). In fact, the influence of shareholders in this respect has been increasing overtime. Glac (2010) claims that shareholders' influence is practiced through two channels, ie. shareholder activism[9] and socially responsible investing[10] (SRI). This implies that the internal pressure of conducting CSR has been more prevalent recently. An increasing external pressure, on the other hand, has also been reflected by the rise of interest groups, NGOs, CSR regulations, and media attention to CSR. Moreover, employing the aspect of reference point from the behavioral economics point of view, we can reason that shareholders should react more to a CSR news, the lower companies' CSR scores are. This conjecture is in accordance to Flammer's (2012) claim that CSR has a decreasing marginal return characteristics. Accordingly, the first hypothesis (which corresponds to Freeman's view) and its alternative (which corresponds to Friedman's view) are formulated as follows:

> *Hypothesis 1a: In the short term, a good (bad) news regarding CSR will generate a positive (negative) reaction from the shareholders and they react more positively (more negatively) to a publication about companies with lower (higher) CSR scores.*

[9] A right of shareholders to actively participate in corporate deliberations by submitting shareholder proposals in order to be "heard" by the management and other shareholders (Glac, 2010).
[10] Investment strategy which assembles portfolio on a basis of social criteria, in addition to classical financial criteria (Sparkes & Cowton, 2004).

*Hypothesis 1b: In the short term, both good and bad news regarding CSR will generate negative reaction from the shareholders and they react more negatively to a publication about companies with higher CSR scores.*

Another interesting research in this respect is the one by Orlitzky (2013) which claims that company's CSR activities have a negative impact on the stabilization of financial market. He argues that investors rely on the published information about CSR to a great extent, regardless of the accuracy of this news. He believes that a lack of meaningfulness of CSR signals will only lead to more noise trading, and hence increase the volatility. However, since bad news is perceived to be more credible according to the conventional wisdom, we would hypothesize that investors would trade more on such credible news, therefore increase the stock volatility. Prior to empirically test this line of argument, we formulate the following hypothesis:

*Hypothesis 2a: The publication of CSR news will increase the stock volatility during the event period, relative to the pre-event period. In comparative manner, however, bad news will produce higher volatility than good news.*

Alternatively, we can argue that since bad news is perceived more credible, there will be less dispersion on the trading induced by such news. This conjecture is formulated by the following alternative hypothesis:

*Hypothesis 2b: The publication of CSR news will increase the stock volatility during the event period, relative to the pre-event period. In comparative manner, however, good news will produce higher volatility than bad news.*

Lastly, we also hypothesize that it may be the case that CSR will not pay off immediately, but in the long term. Contrarily, if the agency problem holds, we hypothesize that the negative impact on stock performance will be reflected in the long term. Therefore, to answer the question whether the companies with low/no financial constraints enjoy the premium, or even get punished of their CSR conducts in the long run, the following hypotheses are constructed:

*Hypothesis 3a: In the long term, CSR conducts of companies with low/no financial constraints will pay off as reflected by an increase in stock return in the following year.*

*Hypothesis 3b: In the long term, CSR conducts of companies with low/no financial constraints will not pay off in terms of stock returns.*

However, in this current research, four aspects of CSR are included in the analysis. Past researchers claimed that certain aspects have more significant influence on financial performance than the other. Flammer (2012) agreed that environmental aspect is of the greatest importance, while McWilliams and Siegel (2000) believed that social pillar is more correlated to financial performance. Thus, we hypothesize that those aspects (corporate governance, social, economic,

and environmental aspect) contribute to a different extent to the shareholders' reaction. This is described by the following hypotheses:

*Hypothesis 4a: Different aspects of corporate social responsibility has a different effect on the stock returns, and environmental aspect has the strongest influence.*

*Hypothesis 4b: Different aspects of corporate social responsibility has an equal effect on the stock returns.*

## IV. DATA AND METHODOLOGY

To analyse the effect of CSR and the news about CSR on the performance of companies' stocks, the data of 500 companies constituting the S&P 500 index are analysed during the period of 2002-2012. To quantitatively measure corporate social responsibility of each company in the dataset, the Environmental, Social, and Governance (ESG) scores, provided by Thomson-Reuters ASSET4 database which is accessible through Datastream Extranet, are summed. The scores considered are mainly the four pillar scores that measure Corporate Governance performance, Environmental performance, Economic performance, and Social performance. The aspects measured for each pillar are summarized in Table 3 below. The ESG scores provided by ASSET4 are aggregately collected by 120 analysts from companies, news sources, stock exchange fillings, and non-government organizations. The scores, which take into account both corporate social responsibility (CSR) and corporate social irresponsibility (CSI), are provided in percentage with a maximum of 100 for each of the four categories. The total CSR scores for this research are defined as the sum of the scores of the four aspects. Therefore, the higher the score is, the more the company is engaged in CSR than CSI activities. Additionally, ASSET4 ESG covers about 1000 companies with historical data up to 2002. Some companies, however, suffer from incompleteness of the data, such that the scores are available only for several years within the specified time horizon. For the sake of robustness of the inference, all companies with no records throughout the whole sample period are excluded. Moreover, companies with data records for less than three years are also excluded from the dataset. After this exclusion, 483 companies are left in our sample (Dataset A) with the summary statistics provided in Table 4.

*Table 3*
Overview of ASSET4 ESG Scores Measurement

| Pillar | Aspects |
|---|---|
| Corporate Governance Score | Board structure |
| | Compensation policy |
| | Board functions |
| | Shareholders rights |
| | Vision and strategy |
| Environmental Score | Resource reduction |
| | Emission reduction |
| | Product Innovation |
| Social Score | Community |
| | Product responsibility |
| | Employment quality |
| | Health and safety |
| | Training and development |
| | Diversity |
| | Human rights |
| Economic Score | Client loyalty |
| | Performance |
| | Shareholders loyalty |

In order to arrive at a reliable sample of companies for our analysis, companies in Dataset A are further filtered. This filter is meant to leave the sample with only companies with low or no financial constraint. The benchmark is calculated using Kaplan and Zingales (1997) index as a proxy of financial constraints. KZ index provides the weighted score of several company's characteristics such as cash flows, assets, cash dividends, cash balances, total debt, market value of equity, and book value of equity using the following formula:

$$(1) \quad KZ_{i,t} = -1.001909CF_{i,t}/A_{i,t-1} - 39.3678D_{i,t}/A_{i,t-1} - 1.314759C_{i,t}/A_{i,t-1} + 3.139193B_{i,t} + 0.28264Q_{i,t} ,$$

where $CF_{i,t}$ is cash flow of firm $i$ at time $t$, $A_{i,t-1}$ is firm $i$'s assets at time $t$, $D_{i,t}$ is firm $i$'s cash dividends at time $t$, $C_{i,t}$ is firm $i$'s cash balances at time $t$, $B_{i,t}$ is firm $i$'s total debt divided by the sum of total debt and book equity at time $t$, and $Q_{i,t}$ is firm $i$'s Tobin's Q (market value of equity plus assets minus book value of equity, all divided by assets) at time $t$. All information regarding

these firm's characteristics are obtained from Compustat. The higher KZ score indicates a higher level of financial constraint. Hence, only companies with a score lower than 1.01, which is based on the median score, are included in the new dataset (Dataset B). The summary statistics of ESG scores of this dataset can be observed in Table 5. Taking only companies with low financial constraints into account avoids us from the causality problem as claimed by Hong, Kubik, and Scheinkman (2012) such that all firms in Dataset B are thus those which are financially capable of being engaged in CSR activities. Comparing the median and average of ESG Scores in Table 4 and Table 5, companies in Dataset B indeed have higher scores in general compared to those in Dataset A

*Table 4*
Summary Statistics of S&P 500 companies' ESG Scores in Dataset A
The data cover 483 companies after excluding those without records throughout the period of 2002-2012 and those with only records for less than 3 years (Dataset A)

| Year | Max | Min | Average | Median | Std. Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| **2002** | 390.41 | 52.45 | 191.0394 | 169.94 | 114.2645 | 0.615807 | -0.53342 |
| **2003** | 389.2 | 42.86 | 192.5932 | 179.28 | 115.463 | 0.552932 | -0.60671 |
| **2004** | 389.66 | 32.11 | 221.0457 | 212.24 | 118.4826 | 0.309367 | -0.67611 |
| **2005** | 391.26 | 41.05 | 229.1011 | 218.44 | 110.6677 | 0.245296 | -0.9471 |
| **2006** | 390.46 | 41.55 | 231.4668 | 220.635 | 107.6236 | 0.225879 | -0.98799 |
| **2007** | 382 | 71.55 | 234.6478 | 230.485 | 96.84275 | 0.078024 | -1.10055 |
| **2008** | 381.23 | 75.96 | 241.2565 | 236.6 | 87.33749 | -0.04102 | -1.17783 |
| **2009** | 381.67 | 20.75 | 250.9781 | 256.37 | 85.16117 | -0.17546 | -1.18155 |
| **2010** | 383.83 | 72.39 | 257.6664 | 264.48 | 82.11182 | -0.24006 | -1.17943 |
| **2011** | 377.55 | 71.23 | 265.7274 | 277.49 | 81.43515 | -0.39164 | -1.10681 |
| **2012** | 380.21 | 44.47 | 257.8377 | 270.05 | 105.8767 | -0.34949 | -1.07213 |

*Table 5*
Summary Statistics of S&P 500 companies' ESG Scores in Dataset B
The data cover 304 companies after excluding those with KZ index higher than 1.01 (Dataset B)

| Year | Max | Min | Average | Median | Std. Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| **2002** | 390.41 | 52.45 | 200.2681 | 176.5 | 89.05194 | 0.503485 | -0.78813 |
| **2003** | 389.2 | 47.35 | 201.9783 | 183.74 | 90.80121 | 0.453084 | -0.85238 |
| **2004** | 389.66 | 32.11 | 233.4157 | 223.935 | 83.13458 | 0.181025 | -0.88462 |
| **2005** | 391.26 | 41.05 | 236.4272 | 226.9 | 86.98761 | 0.129042 | -0.95843 |
| **2006** | 390.46 | 41.55 | 236.3906 | 228.57 | 85.10176 | 0.112083 | -1.01871 |
| **2007** | 381.49 | 71.55 | 243.4416 | 244.585 | 79.02916 | -0.05375 | -1.06014 |
| **2008** | 381.23 | 86.81 | 250.4507 | 246.995 | 81.00675 | -0.13835 | -1.17682 |
| **2009** | 381.67 | 20.75 | 260.1372 | 269.71 | 84.42297 | -0.34613 | -1.01754 |
| **2010** | 383.83 | 84.33 | 269.0513 | 278.13 | 80.00838 | -0.3762 | -1.06235 |
| **2011** | 377.55 | 71.23 | 274.9318 | 292.025 | 80.15653 | -0.56404 | -0.88482 |
| **2012** | 380.21 | 52.32 | 263.9641 | 279.14 | 81.90238 | -0.43257 | -1.03758 |

### 4.1 Short Term Analysis: Event Study

Furthermore, to account for the short term relationship, an event study will be conducted. In this part of analysis, the shareholders' reaction on the corporate social responsibility news released on the media is examined. The news utilized for this study is collected through *Factiva* by choosing several news sources such as: Dow Jones Newswires, Reuters Newswires, The Wall Street Journal, and Major News and Business Publication worldwide which comprises of local newspapers and several online news sites. The print screen of sample news obtained and the full list of the news sources can be found in the Appendix. The news are filtered such that only those which describes the corporate social responsibility/irresponsibility of companies in Dataset B are taken into account. Each news is individually analysed to ensure that certain company and its CSR/CSI conduct is specifically mentioned and is the major topic of the news. This will avoid the problem of confounding events as elaborated by McWilliams, Siegel, and Teoh (1999). Additionally, the dates and sentiment of each news are also hand-collected. Each date of the news collected for each company in Dataset B will then represent the event date (t=0). After systematically reading every news collected from Factiva, there are in total 374 news that can be further worked out. The summary of the valid news can be found in Table 6. Further, Eventus[11]

[11] Eventus is a software to conduct an event study that uses CRSP stock database, which is accessible through Wharton Research Data Services (WRDS)

is utilized to run the event study. The program is chosen since it allows its users to run an event study using Fama-French 3-factor model as the return-generating process.

*Table 6*
Summary of Valid News

| | Good News | | | Bad News | | |
|---|---|---|---|---|---|---|
| | **High Scores** | **Mid Scores** | **Low Scores** | **High Scores** | **Mid Scores** | **Low Scores** |
| **Several company names** | Coca-cola, McDonalds, Wal-Mart Stores, Starbucks | Whole Foods Market, Ebay, Google | Verizon Communications, Kellogg, Western Union | Chevron, Newmont, Procter & Gamble | Monsanto, Costco Wholesale, Apple | Nike, Gap |
| **No. of Observations** | 286 | 36 | 9 | 31 | 9 | 3 |
| **Total no. of observations** | 374 | | | | | |

Control Period

The chosen window for the control period is from 10 days prior to the event date with estimation period length of 100 days. The first step in this part of analysis is to establish the Fama-French (Fama & French, 1993) model in the control period, in order to estimate the value of alpha, beta, gamma, and delta of each individual stock included in the dataset, with respect to the appropriate index. This is illustrated by the following equation:

*(2)* $R_{it} = \alpha_i + \beta_i * R_{mt} + \gamma_i * SMB_t + \delta_i * HML_t + \varepsilon_{it}$

where

$R_{it}$ : daily rate of return of stock $i$ on day $t$

$\alpha_i$ : expected value of $(R_i - \beta_i * R_m)$

$\beta_i$ : $i^{th}$ stock's sensitivity to the market return at time $t$

$\gamma_i$ : $i^{th}$ stock's sensitivity to the return difference between small and large market capitalization stocks

$\delta_i$ : $i^{th}$ stock's sensitivity to the return difference between value and growth stocks

$R_{mt}$ : daily rate of return of market index on day $t$. The proxy for market return is the daily return of the value-weighted CRSP market portfolio, excluding dividends.

$SMB_t$ : the average returns of small market capitalization portfolios minus the average returns of large market capitalization portfolios at time $t$

$HML_t$ : the average returns of high book-to-market equity portfolios minus the average returns of low book-to-market equity portfolios at time $t$

$\varepsilon_{it}$ : error term of the model, with expected value of zero

Test Period

The next step is to calculate the abnormal returns in the test period by deducting the normal return obtained after applying the estimated *α, β, γ,* and *δ* (from control period) from the actual return, according to the following equation:

(3) $AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt} + \hat{\gamma}_i SMB_t + \hat{\delta}_i HML_t)$,

where $AR_{it}$ is the abnormal return of stock *i* at time *t*.

In addition, we must decide the cumulative abnormal returns (CAR) window from the test period. Cumulative abnormal return (CAR) is the sum of abnormal returns during each specified window, which can be mathematically illustrated as follows:

(4) $CAR = \sum_{T1,i}^{T2,i} AR_{i,t}$

where *T1,i* and *T2,i* is the starting and ending day of the specified window for firm *i*.

Then, t-test is performed to test the significance of the average CAR during every specified window. A short window is preferred to avoid the effect of confounding events during that window (McWilliams, Siegel, and Teoh, 1999). Therefore, the chosen windows to be tested are [-1,0], [0,1], [-1,1], [-2,-1], [+1,+2], and [-2,0]. To ensure the robustness while testing each window, a crude dependence adjustment (Brown & Warner, 1980) is taken into account to control for the cross-sectional dependence in the data since events might cluster around a certain date. Moreover, to avoid the possibility that abnormal return of each company (with certain news sentiment and CSR scores) cancels out each other when being averaged, the calculation of average abnormal return (hence, the window determination) is run four times for each of the four groups of companies in the following matrix:

| | **Good News** | **Bad News** |
|---|---|---|
| **High Scores** | Group 1 | Group 2 |
| **Mid/Low Scores** | Group 3 | Group 4 |

*Figure 2.* Matrix of stock groups

After the window with significant CAR is determined, a regression of the CAR during the chosen window, on several variables is then run to evaluate Hypothesis 1 and 2. These variables include industry group, year, news sentiment (good and bad), and score group (high or mid/low

CSR scores). The industry group is based on the SIC code[12] of each company, with the division as can be found in Table 7 below.

*Table 7*
Industry Classification according to SIC Code classification provided by Datastream

| Industry | Code Range | Industry Name | No. of companies |
|---|---|---|---|
| 2 | 1000-1499 | Mining | 16 |
| 3 | 1500-1799 | Construction | 2 |
| 4 | 2000-3999 | Manufacturing | 139 |
| 5 | 4000-4999 | Transportation, Communication, Electric, Gas, Sanitary Service | 27 |
| 6 | 5000-5199 | Wholesale Trade | 9 |
| 7 | 5200-5999 | Retail Trade | 32 |
| 8 | 6000-6799 | Finance, Insurance, Real Estate | 43 |
| 9 | 7000-8999 | Service | 36 |

Furthermore, to analyse the change in stock volatility around the date of news release as elaborated in Hypothesis 2, a regression of the stock volatility change during several short windows in event and post-event period is run. To be precise, the dependent variable is the natural logarithm of the ratio of the stock volatility during [-2,2] and [3,7], and the stock volatility during [-15,-11], to account for the change in stock volatility from the pre-event period to the event and post-event period. On the other hand, the explanatory variables are: the natural logarithm of the ratio of the market volatility during [-2,2] and [3,7], and the market volatility during [-15,-11]the news sentiment; and CSR scores. The regression is properly described by the following regression:

$$(5)\quad \ln\frac{\sigma i[t1,t2]}{\sigma i[-15,-11]} = c_0 + c_1 \ln\frac{\sigma m[t1,t2]}{\sigma m[-15,-11]} + c_2 Dummy_{GoodNews,i} + c_3\ CSR\ Scores_i + \varepsilon_{it}$$

where $\sigma i[t1, t2]$ indicates the stock *i*'s volatility during a certain window; $\sigma m[t1, t2]$ indicates the market volatility during a certain window; *t1* and *t2* denote the start and the end of the specified window, relative to the event day (*t=0*); $Dummy_{GoodNews,i}$ take value of 1 if company $i$ has a good news publication and 0 otherwise; the constant is included to account for the base case which is those companies with bad news publication.

[12] Standard Industrial Classification, a system of classifying industries with a four-digit code, was established in the United States in 1937.

### 4.2 Long Term Analysis

#### 4.2.1 Unconditional Analysis: Double-Sorting

In order to assess the long term effect of companies' CSR activities on their stocks performance, a double-sorting analysis is conducted. Firstly, companies are sorted based on their CSR scores into terciles, ie. low, mid, and high CSR Scores. Secondly, companies in every CSR score tercile are sorted on size, book-to-market ratio, return-on-equity ratio, and current return, also into terciles. Additionally, companies in each CSR score tercile are also sorted based on industry groups (SIC code). The data about firm's size, book-to-market, return-on-equity, and current return are obtained from Datastream, whereas the data regarding SIC codes are obtained from CRSP. The stock returns during the following year are then plotted for each stock group double-sorted.

#### 4.2.2 Conditional Analysis: Multivariate Regression

To complement the result from unconditional double-sorting, a stock return is also regressed on the lagged value of CSR scores, while controlling for market return, size, book-to-market, return-on equity, current return, yearly effect, and industry-specific effect. The following equation describes the regression:

$$(6) \quad R_{i,t} = C_0 + C_1 R_{m,t} + C_2 Score_{i,t-1} + C_3 Size_{i,t} + C_4 BM_{i,t} + C_5 ROE_{i,t} + C_7 YEAR + C_8 IND + \varepsilon_{i,t},$$

where $Size_{i,t}$ is the market value of firm $i$ at time $t$; $BM_{i,t}$ is the ratio of book value and market value of firm $i$ at time $t$; $ROE_{i,t}$ is the ratio of return on equity of firm $i$ at time $t$; $YEAR$ is a matrix that includes 10 dummy variables to account for yearly effect from 2002-2012; $IND$ is a matrix that includes 7 dummy variables to account for industry-specific effect (industry 2, 3, 4, 5, 6, 7, 8, 9). Additionally, to analyze whether certain type of scores contributes more than the others, another regression is run based on the following equation:

$$(7) \quad R_{i,t} = C_0 + C_1 R_{m,t} + C_2 Corp\_Gov\_Score_{i,t-1} + C_3 Economic\_Score_{i,t-1} + C_2 Social\_Score_{i,t-1} + C_2 Environmental\_Score_{i,t-1} + C_3 Size_{i,t} + C_4 BM_{i,t} + C_5 ROE_{i,t} + C_7 YEAR + C_8 IND + \varepsilon_{i,t}$$

### 4.3 Robustness

In order to ensure the soundness of the inferences, several robustness considerations have been taken into account. Firstly, to avoid the problem of confounding events, a short window of two days is used. Moreover, each news is systematically analysed such that only news that specifically cover companies' social (ir-)responsible activities are included. In addition, the cross-sectional dependence due to the clustering of events around certain dates is taken care of by using the crude dependence adjustment. Using the Fama-French 3-factor model as the normal return generating process also ensures us that the abnormal returns for each stock does not rise

due to size and glamour/value stock characteristics. This, together with the short window, gives more certainty that the abnormal return is resulting from CSR news. The time series effect is also taken into account by using dummies to account for each year of observation. Lastly, each regression is run after adjusting for the heteroskedasticity issues.

# V. RESULTS

### 5.1 Event Study

In assessing the short term effect of corporate social responsibility initiation on companies' stock performance, an event study is conducted. Prior to running the event study, companies are grouped according to their CSR scores in the year of news publication. Due to the specification that only companies with at least 3 days of recorded returns in the estimation period are included, 373 news out of the total of 374 news can be worked out on Eventus. In the sample of 373 news studied, all corresponding companies fall within the groups of "high", "mid", and "low" CSR scores. Companies with mid and low CSR scores are grouped together and separated from those with high scores while doing the analysis of cumulative abnormal return (CAR). Moreover, for each score group, the inference is done separately for good and bad news. This separation is important so that the different signs of abnormal returns for companies with different news sentiment do not cancel out each other. This also ensures that the test on various cumulative abnormal return (CAR) windows is more robust. Panel A and B of Table 8 present the final number of news for each group after the classification, where 317 out of 373 observations fall within the group of high CSR scores, leaving only 56 observations distributed into the other groups. This should not impose a problem since the significance of each CAR window is determined according to the time series return variation of each observation. Additionally, from this point on, the four groups will be named: High-Good, High-Bad, Mid/Low-Good, and Mid/Low-Bad.

Table 8 also exhibits the tests on the significance of each CAR windows. The magnitude of each CAR is presented in percentage with the corresponding p-value between the brackets. The t-statistics for CAR in each specified window is computed using the *crude dependence adjustment* as referred by Brown and Warner (1980). This adjustment takes into account the cross-sectional independence which could occur since some news might cluster around the same dates. In addition, the ratio of the number of positive and negative CAR of individual observation is also given for each window.

The first group, High-Good, does not generate statistically significant CAR in each window specified. The ratio of positive and negative CAR does not show a clear direction either, since the number of positive CAR exceeds the negative one only in half of the specified windows. On the other hand, despite the insignificant CAR in each window, the ratio of positive and negative CAR gives a clearer picture of the negative CAR for High-Bad group. However, it is still premature at this stage to conclude that bad news generates a negative reaction on the stock return for companies with high CSR scores. A regression analysis will then be later on conducted to complement the inference.

While the group with good publication and high CSR scores does not show any significant CAR in every window, that with mid/low CSR scores does show a significant negative CAR in [+1,+2] window, with cumulative abnormal return of -0.72%. Moreover, the CAR in Mid/Low-Bad group is also significant at 10% level, with the magnitude of -0.86%.

According to these outcomes, a proper window is then chosen for each group before proceeding to regression analysis. The window of [-2,-1] is chosen for High-Good group, [+1,+2] for Mid/Low-Bad group, [-2,-1] for High-Bad group and Mid/Low-Bad group.

*Table 8*

Event Study

The test on each window of CAR is presented below. Between the brackets are the p-values of CAR in each window. The ratio of the number of positive and negative individual CAR can also befound in the following tables. The analysis of news regarding companies with high CSR scores are displayed in Panel A, whereas those with mid CSR scores are displayed in Panel B.

Panel A High Score Group

| **Event Window** | **Good News** | | **Bad News** | |
|---|---|---|---|---|
| | **CAR (In %)** | **Positive: Negative** | **CAR (In %)** | **Positive: Negative** |
| **[-1,0]** | 0.05% (0.3520) | 145:141 | -0.36% (0.2156) | 12:19 |
| **[0,+1]** | -0.04% (0.3976) | 130:156 | -0.05% (0.4586) | 16:15 |
| **[-2,-1]** | 0.11% (0.2141) | 157:129 | -0.30% (0.2527) | 11:20 |
| **[+1,+2]** | 0.05% (0.3670) | 140:146 | -0.24% (0.2982) | 13:18 |
| **[-1,+1]** | 0.00% (0.4927) | 138:148 | -0.45% (0.2072) | 14:17 |
| **[-2,0]** | 0.12% (0.2337) | 146:140 | -0.25% (0.3245) | 14:17 |
| **No. of observations** | | 286 | | 31 |

* significant at 10% level
** significant at 5% level
*** significant at 1% level

Panel B Mid/Low Score Group

| Event Window | Good News | | Bad News | |
|---|---|---|---|---|
| | **CAR (In %)** | **Positive: Negative** | **CAR (In %)** | **Positive: Negative** |
| **[-1,0]** | -0.15% (0.3366) | 20:24 | -0.42% (0.2301) | 5:7 |
| **[0,+1]** | -0.40% (0.1209) | 20:24 | -0.34% (0.2742) | 3:9 |
| **[-2,-1]** | 0.00% (0.4979) | 21:23 | -0.86%* (0.0663) | 4:8 |
| **[+1,+2]** | -0.72%** (0.0180) | 19:25 | -0.06% (0.4592) | 5:7 |
| **[-1,+1]** | -0.52% (0.1108) | 19:25 | -0.60% (0.1980) | 3:9 |
| **[-2,0]** | -0.03% (0.4707) | 18:26 | -1.03%* (0.0705) | 4:8 |
| **No. of observations** | | 44 | | 12 |

* significant at 10% level
** significant at 5% level
*** significant at 1% level

As mentioned previously, to have a clearer answer to *Hypothesis 1*, a regression of CAR on the news sentiment is run (for the sake of completeness, the observations of the univariate regressions of CAR on several variables, such as CSR scores, type of scores, industry, and year can be found on Table 2 in the Appendix). Table 9 below provides the result of this regression after controlling for yearly and industry-specific effect. Throughout the regressions, some dummies variables have to be dropped to avoid "dummy variable trap"[13]. The variables to be dropped are chosen after observing the effect of their exclusion on other variables.

It can be observed from the signs of the coefficient estimates that both good and bad news produce a negative CAR. Comparatively, bad news generates 0.37% lower CAR than good news. Moreover, the coefficient estimate of the dummy representing companies with high CSR scores show a positive value. This implies that those with higher scores have a less negative CAR than those with lower scores, regardless of news sentiment. At this stage, we can then evaluate

[13] When all categories of each set of dummy variables are present, a problem of multicollinearity exists. This is due to the fact that the sum of those dummy variables will be one, violating the assumption of explanatory variables being independent.

our conclusion regarding the first set of hypotheses. The results mentioned above are partly in adherence to *Hypothesis 1b*. It is indeed proven that both good and news generate a negative reaction from the shareholders, with good news produces a less negative reaction than bad news. However, our conjecture regarding reference point from the behavioral economics perspective, which constitutes the second part of *Hypothesis 1b*, is not proven. We find that traders react more negatively to any news which regards companies with lower CSR scores.

*Table 9*
The regression of CAR on the news sentiment and CSR scores, controlling for industry-specific and yearly effect.

| **Variables** | | **Coefficient Estimates** | **P-Value** | **R-Squared** | **No. of Observations** |
|---|---|---|---|---|---|
| **News Sentiment** | Good | -0.017579*** | 0.0001 | 0.067788 | 371 |
| | Bad | -0.021309*** | 0.0001 | | |
| **CSR Scores** | High | 0.005528* | 0.0924 | | |
| | Mid/Low | - | - | | |

* significant at 10% level
** significant at 5% level
*** significant at 1% level

The other side of the analysis is the effect of the publication of CSR news on the stock volatility. In order to evaluate the second set of hypotheses, the natural logarithm of the ratio between the stock volatility during the event period (represented by [-2,2] window) and the post-event period (represented by [3,7] window) and the stock volatility during the post-event period (represented by [-15,-11] window) is regressed on the dummies of news sentiment, CSR scores, and the natural logarithm of the ratio of market volatility during the same aforementioned windows as control variable. With this setting, a positive value of the dependent variable will indicate an increase in stock volatility, *vice versa*. Table 10 below gives an overview of the effect of the publication of news with different sentiment on the change in stock volatility during event and post-event period. To prove the first part of the hypothesis, Table 10 displays the average change in stock volatility during both periods. Despite the positive values for the two periods, the p-values do not support the claim that stock volatility increases significantly during and after the period of news publication. Moreover, the results of regression analysis presented in Table 11 show that news sentiment does not contribute to any difference in the change of stock volatility. Therefore, we can conclude that the publication of news which regards companies' social responsibility conduct does, regardless of its sentiment, does not produce any significant increase in stock volatility.

*Table 10*

T-test on the change in stock volatility during the event and post-event period, relative to pre-event period. Displayed below is the average change in stock volatility as measured by the natural logarithm of the ratio of stock volatility of event ([-2,2] window) and post-event ([3,7] window) period to the pre-event ([-15,-11] window) period. A positive value indicates an increase in stock volatility, while a negative value a decrease.

| | **Event Period** | **Post-Event Period** |
|---|---|---|
| **Average** | 0.0086 | 0.0387 |
| **T-statistics** | 0.2622 | 1.0489 |
| **p-value** | 0.3967 | 0.1475 |

*Table 11*

The table below presents two regressions of the change in stock volatility during the event and post event period relative to pre-event period, on market volatility, news sentiment, and CSR scores, controlling for industry-specific and yearly effect.

| **Event Window** | **Variables** | **Coefficient Estimates** | **P-Value** | **R-Squared** | **No. of Observations** |
|---|---|---|---|---|---|
| **Event period: [-2,2]** | Constant | 0.258683 | 0.1387 | 0.163076 | 366 |
| | Market Volatility | 0.369012*** | 0.0000 | | |
| | Good News | 0.023592 | 0.8202 | | |
| | High Scores | -0.050165 | 0.6281 | | |
| **Post-event period: [3,7]** | Constant | -0.073343 | 0.7027 | 0.244250 | 366 |
| | Market Volatility | 0.440934*** | 0.0000 | | |
| | Good News | 0.085767 | 0.4370 | | |
| | High Scores | 0.086925 | 0.4300 | | |

* significant at 10% level
** significant at 5% level
*** significant at 1% level

### 5.2 Double Sorting

In order to assess the long term effect of companies' CSR activities on their stocks performance, a double-sorting analysis is conducted. Firstly, companies are sorted based on their CSR scores into terciles. Secondly, companies in every CSR score tercile are sorted on size, book-to-market ratio, return-on-equity ratio, and current return into terciles. The double-sorted stocks' equal-weighted average returns during the following year are then tabulated and can be found in Table 12 below.

After plotting the average return during the following year of stocks in each group, the return difference between the groups of high and low CSR scores is calculated. As can be seen from the result table, the returns of highly socially responsible stocks in the following year are generally lower than less socially responsible stocks, holding firm characteristics constant. Within the size

terciles, only the smallest stocks high CSR scores are "punished". However, the insignificance of return difference might be due to the fact that all companies (S&P 500) in the sample are relatively big stocks, therefore the division does not give noteworthy meaning.

*Table 12*

The table below presents equally-weighted returns of stocks in the following year after first, sorted on CSR scores, and then on size, book-to-market ratio, return-on-equity, and current returns. The return differences between stocks with high and low CSR scores are also displayed for each tercile of firm characteristics.

| | | CSR Score | | | High-Low | T-Stats | P-Value |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | | | |
| **Size** | **1** | 0.2828 | 0.2439 | 0.1880 | -0.0949** | -2.6378 | 0.0248 |
| | **2** | 0.0964 | 0.1090 | 0.1334 | 0.0369 | 1.1707 | 0.2689 |
| | **3** | 0.0483 | 0.0661 | 0.0601 | 0.0118 | 0.4005 | 0.6972 |
| **B/M** | **1** | 0.1267 | 0.1015 | 0.0533 | -0.0734** | -2.5517 | 0.0288 |
| | **2** | 0.1923 | 0.1544 | 0.1148 | -0.0775** | -3.0988 | 0.0113 |
| | **3** | 0.2587 | 0.1771 | 0.1345 | -0.1242** | -3.0319 | 0.0126 |
| **ROE** | **1** | 0.1853 | 0.1315 | 0.0934 | -0.0920** | -2.9318 | 0.0150 |
| | **2** | 0.2245 | 0.1514 | 0.1161 | -0.1084** | -2.8794 | 0.0164 |
| | **3** | 0.2766 | 0.2173 | 0.1171 | -0.1595*** | -4.3747 | 0.0014 |
| **Current Return** | **1** | 0.2115 | 0.1705 | 0.1152 | -0.0963** | -2.6994 | 0.0223 |
| | **2** | 0.1780 | 0.1081 | 0.0862 | -0.0918** | -3.0088 | 0.0131 |
| | **3** | 0.2062 | 0.1392 | 0.1081 | -0.0980** | -2.3548 | 0.0403 |
| **All Stocks** | | 0.1986 | 0.1466 | 0.0959 | -0.1027*** | -4.0638 | 0.0023 |

* significant at 10% level
** significant at 5% level
*** significant at 1% level

### 5.3 Multivariate Regression

To complement the unconditional inferences described above, a multivariate regression of the stock return on the one-year lagged value of CSR score, while controlling for market return, size, book-to-market, return-on-equity, yearly effect and industry-specific effect is run. The result of this regression can be observed from Regression 1 of Table 13 below. As indicated by the resulting coefficient estimate, the CSR scores of last year does not have a significant effect on companies' current return. In order to have a better picture of the long term effect of CSR conduct on financial performance, however, the CSR scores of the current year, as well as those from previous 2 years are instead in use. Regression 2 and 3 of Table 13 display the results of this analysis. The current year CSR scores turn out to be negatively affect the stock returns of the

same year, as indicated by the coefficient estimate of -0.000597 which is significant at 1% level. Moreover, the scores from previous 2 years also negatively influences the stock returns by -0.000156, which is significant at 10% level. The same mechanism is also done for the scores from previous 3 years, but the coefficient estimate turn out to be insignificant. Accordingly, it can be concluded that the negative impact of CSR conduct on the stock returns are reflected immediately (within the same year) and in two year time. These results are consistent with *Hypothesis 3b* which claims that CSR will not pay off in terms of stock returns in the long run. In particular, CSR will worsen the stock returns in 2 years.

Moreover, when stock returns are regressed on the four aspects of CSR scores, only the coefficient estimates of current year corporate governance and social scores show significant values. Additionally, corporate governance score shows a slightly lower coefficient estimate than social score, indicating that this score contributes most negatively to the stock return in the current year. The one-year and two-year-lagged values, on the other hand, do not have a significant influence on the stock returns. Since the significant influence of corporate governance and social score on stock returns is reflected immediately, we cannot reject *Hypothesis 4b*.

*Table 13*
Long Term Regression
Six regressions of stock returns on several variables are presented below. Firstly, one-year-lagged values of CSR scores are in use. Secondly, the current CSR scores are in use. Lastly, the two-year-lagged values of CSR are in use.

| Regression | Variables | Coefficient Estimates | P-Value | R-Squared | No. Of Observations |
|---|---|---|---|---|---|
| **Regression 1** | **Constant** | 0.220466*** | 0.0025 | 0.274875 | 2874 |
| | **CSR Score (-1)** | -0.000105 | 0.1309 | | |
| | **Market Return** | 2.971469*** | 0.0000 | | |
| | **Size** | -5.71E-07*** | 0.0001 | | |
| | **B/M** | -0.179001*** | 0.0000 | | |
| | **ROE** | 2.40E-06 | 0.7212 | | |
| **Regression 2** | **Constant** | 0.264869*** | 0.0004 | 0.250440 | 3145 |
| | **CSR Score** | -0.000597*** | 0.0000 | | |
| | **Market Return** | 0.791236*** | 0.0000 | | |
| | **Size** | -2.08E-07 | 0.1040 | | |
| | **B/M** | -0.183161*** | 0.0000 | | |
| | **ROE** | 2.54E-06 | 0.7905 | | |
| **Regression 3** | **Constant** | 0.248099*** | 0.0013 | 0.259359 | 2601 |

| | | | | | |
|---|---|---|---|---|---|
| | **CSR Score (-2)** | -0.000156* | 0.0580 | | |
| | **Market Return** | 2.849605*** | 0.0000 | | |
| | **Size** | -5.40E-07*** | 0.0003 | | |
| | **B/M** | -0.166976*** | 0.0000 | | |
| | **ROE** | 9.43E-07 | 0.9845 | | |
| **Regression 4** | **Constant** | 0.189675** | 0.0132 | 0.274901 | 2874 |
| | **Corp Governance Score (-1)** | 2.33E-05 | 0.9559 | | |
| | **Economics Score (-1)** | -0.000169 | 0.7042 | | |
| | **Environmental Score (-1)** | -0.000112 | 0.8098 | | |
| | **Social Score (-1)** | -0.000135 | 0.8143 | | |
| | **Market Return** | 0.580930*** | 0.0000 | | |
| | **Size** | -5.70E-07*** | 0.0001 | | |
| | **B/M** | -0.178832*** | 0.0000 | | |
| | **ROE** | 2.64E-06 | 0.6975 | | |
| **Regression 5** | **Constant** | 0.270514*** | 0.0004 | 0.249512 | 3145 |
| | **Corp Governance Score** | -0.001154*** | 0.0231 | | |
| | **Economics Score** | 0.000341 | 0.3357 | | |
| | **Environmental Score** | -0.000341 | 0.3619 | | |
| | **Social Score** | -0.001003** | 0.0202 | | |
| | **Market Return** | 0.783590*** | 0.0000 | | |
| | **Size** | -2.86E-07 | 0.0306 | | |
| | **B/M** | -0.182841*** | 0.0000 | | |
| | **ROE** | 2.80E-06 | 0.7526 | | |
| **Regression 6** | **Constant** | 0.246186*** | 0.0019 | 0.259983 | 2601 |
| | **Corp Governance Score (-2)** | -0.000332 | 0.4488 | | |
| | **Economics Score (-2)** | -0.000406 | 0.3383 | | |
| | **Environmental Score (-2)** | 0.000345 | 0.4903 | | |
| | **Social Score (-2)** | -0.000272 | 0.6332 | | |
| | **Market Return** | 1.437339*** | 0.0000 | | |
| | **Size** | -5.47E-07*** | 0.0003 | | |

| | | |
|---|---|---|
| **B/M** | -0.166352*** | 0.0000 |
| **ROE** | -8.11E-07 | 0.9866 |

* significant at 10% level
** significant at 5% level
*** significant at 1% level

# VI. DISCUSSION

This current paper mainly addresses two problems regarding corporate social responsibility among firms with low financial constraints, namely the short run and long run implication on the firms' financial performance, as measured by their stock returns. For the short run study, news regarding companies' socially (ir)responsible activities are collected and analyzed. The corresponding reaction of the stock returns is then evaluated in order to see how investors value firms' goodness as reported by publicly available news. Not only stock returns, the effect of such news on idiosyncratic volatility before, during, and after the news publication is also studied. For the long run analysis, the stocks in our sample are first sorted on their CSR scores into terciles, and sequentially on firm characteristics also into terciles. The returns on the following year are then tabulated to provide the unconditional return differences between stocks with high and low CSR scores. Moreover, a regression analysis on the same relationship is run after controlling for firm characteristics, yearly effect, and industry-specific effect, to provide the conditional results on CSR-stock returns relationship.

The result of short run analysis shows that investors react negatively to both good and bad news regarding CSR. In comparative manner, however, they react more negatively towards bad publication of companies' social irresponsibility. This result is consistent with Friedman's view and also the finding of Kruger (2013) as described in literature part. Moreover, investors do not seem to update their reference point on companies' capabilities in being engaged in socially responsible activities, as described by our second hypothesis. The result shows that companies with higher scores always have a less negative reaction, regardless of the sentiment of the news. This is inconsistent with Flammer's (2013) claim that CSR has a decreasing marginal return characteristics. These results are in relation of the characteristics of firms in our sample. All companies are those of large size and those with low financial constraints, therefore all companies in our sample are those capable of making their business more socially responsible, more than what is legally required. The firms in our sample are those who have not been engaged in extreme socially irresponsible activities or have continually improved their image in terms of CSR. After reading the news, even though firms such as Newmont with their poisonous operations in Buyat Bay, Indonesia, or Nike with the bad working conditions and child labor in

their Asian factories, or Starbucks with their negative practices towards coffee farmers in the past, they have been continually improving their business to comply to social responsible standards. This can also be seen by the ratio of the number of good and bad news collected. Therefore, agreeing to Kruger (2013), it can be concluded that if companies do not have a bad track record in terms of CSR, or they have already engaged in "clean" (environmentally and socially friendly) business, a substantial resource allocation to socially responsible projects is deemed to be a wasteful spending, hence a negative reaction from investors. Accordingly, since CSR is highly (financial) resource-intensive, it can be said that CSR is priced only to certain limit. Exceeding that limit, CSR is not valued anymore, and moreover, it can negatively impact the financial performance of a firm. In Kruger's language, it is a necessary condition for CSR to be in shareholder's interest, but it is not at all sufficient. Moreover, another possible explanation for the negative reaction to CSR announcements is that shareholders would not value the initiatives only, but rather the completion and overall social performance of companies. However, we will reevaluate this conjecture while discussing the long term result.

Furthermore, our result does not support the claim that news about CSR increases stock volatility. This could be caused by limited methodological techniques in assessing idiosyncratic volatility. Therefore, a more advanced technique is required to further analyze this conjecture. A room for further research is also to analyze whether CSR news would have an impact on market volatility in the long run as claimed by Orlitzky (2013).

In the long run, we find that CSR also has a negative impact on the stock return after controlling for several firm characteristics, such as size, book-to-market ratio, and return-on-equity ratio. Both unconditional (double-sorting) and conditional (regression) analyses point towards the same direction. While the unconditional analysis shows that the negative impact is prominent in the year following the portfolio construction, the conditional analysis infers a more precise timing such that the negative impact on stock returns is prominent in the same year of and two years after companies' social responsibility evaluation.

We previously mentioned that shareholders might not value CSR announcements, but rather the overall performance and the completion. However, the results of the long term analysis do not comply with this line of argument. Even in the long term (hence, overall performance and completion is already taken into account), shareholders do not value CSR favorably.

Alternatively, a possible explanation is that the market values CSR differently overtime, relative to the expectation of shareholders in certain particular period. Compared to the time period used

in the existing literature which mostly subscribe to the positive relationship, the time period of our sample is very recent. This might give an indication that while more and more companies are engaged in CSR activities, market's valuation to CSR is decreasing overtime as argued by Flammer (2012). As more CSR regulations are imposed and more companies are enacting CSR policies, shareholders do not value firms' social responsibility as favorably as before, while still "punish" firms' social irresponsibility. Alex Edmans (2011) added to this line of argument. In his paper he found that in the early period, market underreacted to information, hence failed to incorporate intangibles due to lack of information, the use of traditional valuation methodologies, and managerial myopia theories (managers underinvest in intangible assets because they are invisible to the market and thus do not improve stock price). This led to the superior long-horizon returns. However on the contrary, when shareholders has learned of the positive impact of CSR and stock returns in earlier periods, one should expect that the returns decrease overtime (Edmans, 2011). This is exactly what we have observed in this research.

Moreover, another possible explanation is that shareholders do consider the intrinsic motivation of firms in doing CSR. Companies might not engage in social responsible activities for the sake of good will, but rather for pure interest of publicity. Nevertheless, intrinsic motivation is not directly observable. Therefore, shareholders might deem CSR activities as a waste of resources, unnecessary spending, and hence reduction of the size of the "pie" allocated to them. This somewhat relates to the aforementioned asymmetric reaction of shareholders towards CSR/CSI conducts. Firms' social irresponsibility is more transparent to shareholders such that its publication is deemed credible. Therefore, poor corporate social performance will lead to a poor stock performance resulted from the reduction in the number of long term investors holding firm's stock (Cox, Brammer, & Milligton, 2004). On the other hand, asymmetric information seems to be prevalent in assessing CSR. Problems such as wasteful spending, intrinsic motivation, and the conflict of interest between managers and shareholders, which are arguably more severe in big and non-financially constrained companies, lead investors to no longer value CSR.

# VII. CONCLUSION

Among the existing researches that have attempted to explain the CSR/CSI practice and its effect on the firm performance, this present research aims at explaining such relationship in big companies with low financial constraints in short and long term during the period of 2002-2012. In addition, the short term relationship is assessed by taking into account the role of media.

We find that in short term, shareholders do not favorably value the CSR practices and initiatives, while punish the CSI practices. In the long run, on the other hand, the negative effect on the stock returns is significantly reflected two years after the socially responsible activities were implemented. With these findings, the CSR-CFP relationship in the big and financially unconstrained companies is in accordance to Friedman's view such that problems such as wasteful spending and conflict of interest hinder the shareholders to favor CSR conducts.

The contrastive results of the long term relationship, as compared to several past researches, might also indicate that shareholders' valuation to CSR conducts vary overtime, relative to the overall CSR trend in the market in particular period. This opens up an opportunity for the future researchers to assess the possible wave in market valuation towards CSR conduct, which can be done by dividing the whole period into sub-periods prior to evaluating the relationship. This might also prove our previously mentioned conjecture, which based on Edmans' (2011) argument, which states that once the shareholders have learned about the positive relationship claimed by previous studies, one should observe a reverse relationship afterwards.

This paper is nevertheless subject to several limitations. Firstly, since the assessment of news in the short term analysis is highly labor-intensive and rather subjective, another methodology in analyzing the short term CSR-CFP relationship could be instead implemented. A more detailed distinction of the news, such as that of environmental or social issue, can be done in order to get a more precise picture on how different type of news has different influence on shareholders. Furthermore, our methodology for the long term analysis is rather simplistic. A panel study, for instance, could be applied to capture the cross-sectional and time series variation in the CSR-CFP relationship. Lastly, the volatility study of this research has not produced a noteworthy result, which could be subject to methodological issue. Another suggestion for future research would be then to implement a more robust methodology to assess the implication of CSR news on idiosyncratic volatility.

Finally, the findings have some practical implications for several areas. Firstly, it is crucial for companies to transparently communicate not only their CSR initiatives but also the executions, to every party that is involved in the running of the business. In large and non-financially constrained companies, transparency between managers and shareholders during the decision-making process is especially needed when companies are dealing with financial resource-intensive activities. Moreover, since CSR matters greatly to shareholders, it is also important for the policy makers to establish and coordinate a clear regulation with companies to set a common knowledge of what standard a company needs to comply to. This will avoid certain CSR

activities to be deemed wasteful by shareholders. Lastly, as the CSI conducts severely impact the stock returns, companies that have been involved in such conduct need to restore their image immediately since it is rather hard to change the negative paradigm that has taken place among shareholders.

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# APPENDIX

**Table 1**
Summary Statistics of variables used in the regression, including stock returns, size, B/M, and ROE during 2004-2012 for all companies in Dataset B

Panel A: Stock returns

| | Max | Min | Median | Std. Deviation | Average | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| **2002** | 5.817201 | -0.84968 | 0.024145 | 0.6201 | 0.122289 | 4.627721 | 32.47513 |
| **2003** | 1.206573 | -0.82795 | -0.09063 | 0.273452 | -0.10099 | 0.270075 | 2.109949 |
| **2004** | 3.96730245 | -0.19678 | 0.322939 | 0.480355 | 0.44069 | 2.631539 | 11.88131 |
| **2005** | 3.36374002 | -0.56409 | 0.16341 | 0.389709 | 0.235982 | 3.085325 | 17.94959 |
| **2006** | 3.29021862 | -0.33206 | 0.092166 | 0.385062 | 0.182855 | 3.004312 | 16.89622 |
| **2007** | 1.96836314 | -0.39359 | 0.142779 | 0.247666 | 0.167271 | 2.153462 | 12.01871 |
| **2008** | 7.95240952 | -0.48066 | 0.083309 | 0.641684 | 0.202818 | 7.104882 | 75.50775 |
| **2009** | 0.60841435 | -0.92646 | -0.35392 | 0.218952 | -0.35041 | 0.379393 | 0.938904 |
| **2010** | 3.95405405 | -0.3568 | 0.314285 | 0.537574 | 0.438753 | 2.701844 | 10.7926 |
| **2011** | 2.23851879 | -0.44783 | 0.200085 | 0.301232 | 0.234751 | 2.022538 | 8.697285 |
| **2012** | 0.72122602 | -0.74574 | -0.00768 | 0.222819 | 0.00847 | 0.256066 | 0.745037 |

Panel B: Size (Market Value)

| | Max | Min | Median | Std. Deviation | Average | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| **2002** | 356806.1 | 42.19 | 7072.35 | 44042.56 | 20773.06 | 4.313111 | 22.08414 |
| **2003** | 276630.7 | 42.43 | 5878.04 | 34054.6 | 16374.51 | 4.617543 | 25.32801 |
| **2004** | 295937.2 | 87.27 | 8167.665 | 40088.1 | 20771.3 | 4.356756 | 22.07344 |
| **2005** | 323145.3 | 370.71 | 10024.05 | 39010.84 | 22428.45 | 4.391382 | 24.3259 |
| **2006** | 349511.9 | 839.18 | 10678.4 | 39035.24 | 23621.94 | 4.433885 | 25.86146 |
| **2007** | 446943.3 | 809.51 | 12586.81 | 45460.95 | 26598.23 | 4.810807 | 31.47153 |
| **2008** | 511886.8 | 1384.8 | 13390.68 | 50719.75 | 29508.62 | 4.923989 | 33.75934 |
| **2009** | 406067 | 902.49 | 7906.265 | 37182.53 | 19146.77 | 5.69544 | 45.00382 |
| **2010** | 323717.1 | 1899.77 | 10590.18 | 39173.37 | 23741.55 | 4.11067 | 20.66159 |
| **2011** | 375922.4 | 2697.14 | 13393.73 | 42807.24 | 26946.93 | 4.331792 | 23.89661 |
| **2012** | 406272.1 | 2261.67 | 13056.04 | 45791.59 | 26979.26 | 4.776652 | 29.38163 |

Panel C: Book-to-Market Ratio

| | Max | Min | Median | Std. Deviation | Average | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| **2002** | 1.851852 | -0.07018 | 0.31153 | 0.286825 | 0.382778 | 1.94006 | 5.780493 |
| **2003** | 3.333333 | 0.0293 | 0.414938 | 0.374224 | 0.504772 | 3.181161 | 19.01917 |
| **2004** | 2.222222 | 0.008807 | 0.341297 | 0.283505 | 0.415639 | 2.119198 | 8.111782 |
| **2005** | 1.428571 | 0.013937 | 0.322581 | 0.231558 | 0.377234 | 1.497843 | 3.256908 |
| **2006** | 5 | 0.003638 | 0.315461 | 0.379575 | 0.405116 | 7.349339 | 79.62218 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **2007** | 1.428571 | -0.07813 | 0.315957 | 0.224484 | 0.373873 | 1.455169 | 3.553754 |
| **2008** | 1.123596 | -0.06101 | 0.301665 | 0.188661 | 0.327244 | 0.939332 | 1.207751 |
| **2009** | 6.666667 | -0.05435 | 0.529101 | 0.573667 | 0.648814 | 5.080036 | 43.68846 |
| **2010** | 2.272727 | -0.01746 | 0.413251 | 0.328055 | 0.500888 | 1.798757 | 5.050504 |
| **2011** | 2.380952 | -0.14065 | 0.380228 | 0.298797 | 0.447161 | 1.870567 | 6.774682 |
| **2012** | 2.564103 | -0.31056 | 0.420168 | 0.349206 | 0.495637 | 1.638115 | 4.839942 |

Panel D: Return on Equity

| | **Max** | **Min** | **Median** | **Std. Deviation** | **Average** | **Skewness** | **Kurtosis** |
|---|---|---|---|---|---|---|---|
| **2002** | 211.8 | -122.73 | 11.32 | 28.37882 | 10.62954 | 1.110298 | 16.24491 |
| **2003** | 12109.6 | -675.21 | 14.12 | 714.0015 | 57.21813 | 16.81442 | 284.813 |
| **2004** | 128.05 | -77.65 | 16.545 | 17.37005 | 17.83929 | 1.66422 | 16.99241 |
| **2005** | 231.73 | -22.24 | 18.24 | 20.06032 | 21.18132 | 5.324194 | 46.11558 |
| **2006** | 133.71 | -15.39 | 18.815 | 13.75474 | 20.68679 | 2.843964 | 18.0074 |
| **2007** | 92.47 | -113.53 | 19.22 | 16.01609 | 20.58272 | -1.02675 | 18.70569 |
| **2008** | 4314.55 | -162.41 | 17.28 | 249.1903 | 30.84595 | 17.04348 | 293.9465 |
| **2009** | 491.49 | -221.09 | 14.125 | 40.84705 | 17.79467 | 5.788549 | 70.30329 |
| **2010** | 194.38 | -23.09 | 16.39 | 19.39364 | 20.14689 | 4.190153 | 27.75693 |
| **2011** | 212.98 | -30.88 | 17.86 | 19.60087 | 20.54246 | 4.856293 | 39.04303 |
| **2012** | 121.7 | -41.43 | 16.32 | 16.70533 | 18.56904 | 2.21879 | 10.43655 |

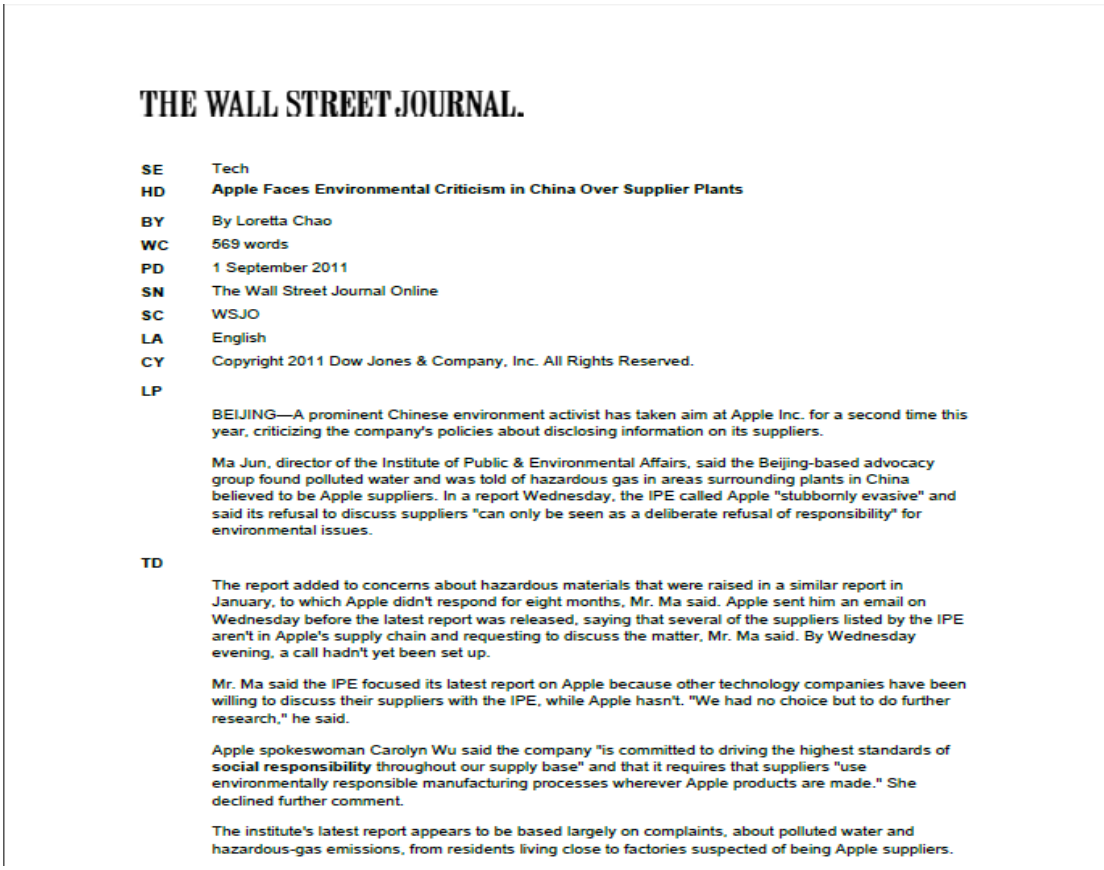
**News Sources**

1. Dow Jones Newswires
2. Reuters Newswires
3. The Wall Street Journals
4. Major News and Business Publication in the U.S:
    - Web Site:ABC News
    - Publication:The Atlanta Journal - Constitution
    - Web Site:The Atlanta Journal - Constitution
    - Publication:The Atlantic
    - Publication:The Baltimore Sun
    - Web Site:The Baltimore Sun
    - Publication:Barron's
    - Web Site:Barron's Blogs
    - Publication:Barron's Online
    - Web Site:Bloomberg
    - Web Site:Bloomberg Businessweek
    - Publication:The Boston Globe
    - Web Site:Boston Herald
    - Web Site:The Business Insider
    - Publication:Charlotte Observer (N.C.)
    - Web Site:Chicago Sun-Times
    - Publication:Chicago Sun-Times
    - Publication:Chicago Tribune
    - Web Site:Chicago Tribune
    - Publication:The Christian Science Monitor
    - Web Site:The Christian Science Monitor
    - Web Site:CNBC
    - Web Site:CNN
    - Web Site:CNNMoney

- Publication:The Dallas Morning News
- Web Site:The Dallas Morning News
- Web Site:Denver Post
- Publication:The Denver Post
- Publication:Detroit Free Press
- Web Site:Detroit Free Press
- Publication:Dow Jones Institutional News
- Publication:Forbes
- Web Site:Forbes.com
- Web Site:FOXNews.com
- Web Site:The Hartford Courant (Conn.)
- Publication:Houston Chronicle
- Web Site:Houston Chronicle
- Web Site:Indianapolis Star
- Publication:latimes.com
- Publication:Los Angeles Times
- Publication:MarketWatch
- Web Site:MarketWatch Blogs
- Publication:The Miami Herald
- Web Site:My San Antonio
- Web Site:National Public Radio
- Web Site:NBC News
- Publication:New York Daily News
- Publication:New York Post
- Web Site:New York Post
- Publication:The New York Times
- Publication:New Yorker
- Publication:The News & Observer (Raleigh, N.C.)
- Publication:Newsday (N.Y.)
- Publication:Newsweek
- Publication:Newsweek - Print and Online
- Web Site:NJ.com
- Web Site:Nola.com
- Publication:NYT Blogs
- Publication:NYTimes.com Feed
- Web Site:Orlando Sentinel
- Publication:Orlando Sentinel (Fla.)
- Publication:The Philadelphia Daily News
- Publication:The Philadelphia Inquirer
- Web Site:Philly.com (Philadelphia, Pa.)
- Web Site:Pittsburgh Post-Gazette
- Publication:Pittsburgh Post-Gazette
- Web Site:Politico
- Publication:San Antonio Express-News
- Publication:The San Francisco Chronicle
- Web Site:San Jose Mercury News
- Publication:San Jose Mercury News
- Web Site:SF Gate
- Web Site:South Florida Sun-Sentinel
- Publication:South Florida Sun-Sentinel
- Publication:St. Louis Post-Dispatch
- Publication:St. Paul Pioneer Press
- Publication:Tampa Bay Times
- Publication:Tampa Bay Times: Blogs (Fla.)

- Web Site:TampaBay.com
- Web Site:Time
- Publication:The Times-Picayune
- Web Site:USA Today
- Publication:USA Today
- Publication:The Wall Street Journal Online
- Publication:The Wall Street Journal
- Publication:The Washington Post
- Publication:Washington Post.com
- Web Site:WSJ Blogs

**Figure 1**
Print screen of sample news obtained from Factiva



THE WALL STREET JOURNAL.

SE Tech
HD **Apple Faces Environmental Criticism in China Over Supplier Plants**
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LA English
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LP

BEIJING—A prominent Chinese environment activist has taken aim at Apple Inc. for a second time this year, criticizing the company's policies about disclosing information on its suppliers.

Ma Jun, director of the Institute of Public & Environmental Affairs, said the Beijing-based advocacy group found polluted water and was told of hazardous gas in areas surrounding plants in China believed to be Apple suppliers. In a report Wednesday, the IPE called Apple "stubbornly evasive" and said its refusal to discuss suppliers "can only be seen as a deliberate refusal of responsibility" for environmental issues.

TD

The report added to concerns about hazardous materials that were raised in a similar report in January, to which Apple didn't respond for eight months, Mr. Ma said. Apple sent him an email on Wednesday before the latest report was released, saying that several of the suppliers listed by the IPE aren't in Apple's supply chain and requesting to discuss the matter, Mr. Ma said. By Wednesday evening, a call hadn't yet been set up.

Mr. Ma said the IPE focused its latest report on Apple because other technology companies have been willing to discuss their suppliers with the IPE, while Apple hasn't. "We had no choice but to do further research," he said.

Apple spokeswoman Carolyn Wu said the company "is committed to driving the highest standards of **social responsibility** throughout our supply base" and that it requires that suppliers "use environmentally responsible manufacturing processes wherever Apple products are made." She declined further comment.

The institute's latest report appears to be based largely on complaints, about polluted water and hazardous-gas emissions, from residents living close to factories suspected of being Apple suppliers.

**Table 2**
Univariate Regression
Four regressions on each of the variables individually, with CAR as the dependent variable are presented below.

| Variables | | Coefficient Estimates | P-Value | R-Squared | P-Value Of Wald Test | No. Of Observations |
|---|---|---|---|---|---|---|
| **News Sentiment** | Good | -0.000701 | 0.5171 | 0.004046 | 0.2216 | 371 |
| | Bad | -0.004596 | 0.1252 | | | |
| **CSR Scores** | Mid/Low | -0.007523*** | 0.0040 | 0.018880 | 0.0049 | 371 |
| | High | 0.007505*** | 0.0080 | | | |
| **Industry** | 2 | -0.001532 | 0.7246 | 0.038201 | 0.0000 | 371 |
| | 4 | 0.000786 | 0.5628 | | | |
| | 5 | 0.002427 | 0.4108 | | | |
| | 6 | 0.017000*** | 0.0000 | | | |
| | 7 | -0.001365 | 0.3709 | | | |
| | 8 | -0.008957** | 0.0212 | | | |
| | 9 | -0.011184** | 0.0395 | | | |
| **Year** | 2002 | -0.007600*** | 0.0016 | 0.018903 | 0.0327 | 371 |
| | 2003 | 0.004787 | 0.2127 | | | |
| | 2004 | -0.001538 | 0.6156 | | | |
| | 2005 | 0.001194 | 0.5216 | | | |
| | 2006 | 0.002795 | 0.3904 | | | |
| | 2007 | -0.003275** | 0.0446 | | | |
| | 2008 | -0.004643 | 0.3872 | | | |
| | 2009 | -0.000637 | 0.8309 | | | |
| | 2010 | -0.001770 | 0.3230 | | | |
| | 2011 | 0.000527 | 0.8601 | | | |
| | 2012 | 0.002810 | 0.3500 | | | |

* significant at 10% level
** significant at 5% level
*** significant at 1% level