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THE EFFECT OF CSR REPORTING ON STOCK PRICES IN EUROPEAN MARKETS

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Abstract

CSR economic implications have been studied from various points of view. However, we think literature so far has failed to address some issues we aim to study in this research. We focus on the effects of disclosure of sustainability information, which is meant to increase the firm's level of transparency with stakeholders, reduce information asymmetry and signal the company's social accountability. There are two issues this thesis strives to understand; the first one is the empirical effect of the initiation of voluntary CSR disclosure on a firm's market value, as measured by the stock price. The second issue is the hypothesis that CSR information can be used as a tool to greenwash financial information. Our findings suggest that CSR disclosure *per se* is not sufficient to raise a firm's stock price, and that companies do not intentionally use CSR for greenwashing.

Resumo

As implicações económicas da responsabilidade social das empresas foram estudadas de diversos pontos de vista. Contudo, consideramos que a literature não foi capaz abordar algunas questões que queremos analisar nesta investigação. Vamos concentrar-nos nos efeitos da divulgação de informações sobre a sustentabilidade, que destina-se a aumentar o nível de transparência com os stakeholders, a reduzir a assimetria da informação e a sinalizar a responsibilidade social da empresa. Nesta dissertação há duas questões que queremos analisar: a primeira è o efeito empírico do início da divulgação de informações sobre a CSR sobre o valor de mercado duma empresa, medido pelo preço das acções. A segunda questão trata sobre a teoria que a informações sobre a CSR podem ser utilizada para esconder as informações financeiras (greenwashing). As nossas conclusões sugerem que as informações sobre a sustentabilidade *per se* não são suficientes para aumentar o preço das acções, e que as empresas não usam intencionalmente CSR para greenwashing.

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To Friday, because Lisbon with you
was sun, smiles, music, and dance… Happiness.
To Fede, because you made me feel alive again.
When I hold your hand, my heart is at Peace.
To my family. Wherever I will be, you will always be my Home.
To Paolino, Rebi, Franci e Simone,
I hope life will give you a lot of Joy, and thousands of these experiences.

Alla mia mamma e al mio papà. le emozioni che ci uniscono le sappiamo solo noi..

" Por eso dale mueve, mueve las caderas
vamos a gozar la vida y lo que la suerte llega
por eso dale mueve, sacude los temores
no te quejes tanto y no me llore
y para que vengan tiempos mejores ..
Que suenen suenen suenen los tambores
que cuando suenen se curen el alma y los corazones
que suenen suenen suenen los tambores
ay que traigan alegría y se lleven los dolores ! "
L. Bacallao (*Lento*)

Obrigadinho pela vida, liberdade, felicidade e alegria, Lisboa.
Até sempre.

Gio

I. Introduction

Companies worldwide are increasingly adopting sustainable activities, and integrating them into their strategic processes and operations (Al-Tuwaijri et al., 2004). Sustainability leaders are increasingly addressing social and environmental issues by aligning their interests with those of their stakeholders (Moratis, 2016). The amount of voluntary disclosure of nonfinancial information in the form of standalone CSR reports has been increasing in recent years, as well as their average length (Dhaliwal et al., 2011; Simnett et al., 2009). Disclosure of nonfinancial information is targeted to a broader group of stakeholders than just the investors (e.g. consumers who care about social issues, Lev et al., 2010) and it is meant to increase the firm's level of transparency with stakeholders, reduce information asymmetry and signal the company's social accountability.

Nowadays, customers, investors, institutions and society at large are showing increased awareness and concerns about the impact of the business world on the environment and society, resulting in strong pressures for companies to engage in corporate social responsibility. Scarcity of natural resources, ethical theories of firms' social responsibility (Freeman, 1984), recent financial scandals (e.g. Enron in the US, Banca Monte dei Paschi di Siena in Italy), and the recent rapid growth in socially responsible investment in the US (Dhaliwal et al., 2011) are together causes and effects of this trend.

Many scholars have studied the factors that influence the choice to voluntarily publish sustainability information (for example, Meek et al. 1995), and the choice to have the reports assured (Simnett et al., 2009), a natural consequence of the rapid growth of sustainability reporting and agency costs. An important result of the extant literature is that companies in specific industries are more prone than others to disclose nonfinancial information (especially environment-related), reflecting greater sensitivity of those industries toward social accountability issues (Simnett et al., 2009; Meek et al., 1995). The *industry effect* may suggest that companies are influenced by their competitors' choice in terms of sustainability reporting. This conclusion is consistent with the finding that, all else being equal, most consumers prefer firms with higher levels of CSR (Mohr et al., 2001). Moreover, companies reporting on sustainability have been found to be more likely to appear in sustainability rankings and to be ranked higher than non-reporters (Ernst & Young BC, 2013). Also, being high-ranked seems to be correlated with size, degree of ownership concentration, degree of

globalization and the GDP of the country which the firm is located in (Ferrell et al., 2017, forthcoming).

I.1 A global reporting standard

Nonfinancial disclosure, or socio-environmental accounting, has its origins in the 1970s, when financial information started not to be considered enough to represent the actual corporate value of big firms. Supporting this idea, research has found that large MNCs provide more information in their annual reports than regulation requires, a signal that complying with minimum requirements is not sufficient (for example, Meek et al., 1995; Simnett et al., 2009).

Sustainability reporting has become a common practice in the 21st century. However, for reporting to be as useful as possible, a standard which would allow quick and easy assessment and comparability was needed. The Global Reporting Initiative (GRI) has recently emerged as the global standard for sustainability reporting. Several stakeholders on a global scale have been involved in the process of the GRI Guidelines definition (companies, NGOs, labor groups, society at large), and all industries have been represented. This aspect has been crucial to the success of the Guidelines, as companies are more likely to behave in socially responsible ways if regulation and enforcement are based on negotiation and consensus among all stakeholders (Campbell, 2007). Moreover, the GRI Guidelines have been designed to harmonize with other standards (e.g. OECD Guidelines, ISO 26000, etc.) (Ernst & Young BC, 2013). Companies following the GRI Principles are also strongly encouraged to submit their reports to external assurance, which partly explains the fast increase in recent years.

The Global Reporting Initiative and the Integrated Initiative AIC are currently collaborating to develop a new global standard, which will take the form of an *integrated report*. The objective of the project is to link and merge CSR and financial information into one single document, and stop considering them as two separated aspects of doing business. This new way of reporting goes hand in hand with the *shared value* ethical theory (Porter and Kramer, 2011), according to which companies should stop thinking of CSR as only a means to avoid cost and threats and should start integrating it into the company's overall strategy. In other words, sustainable practices must be seen as an opportunity to create more value and share it with all the stakeholders. "…managers should change their strategic outlook regarding a firm's environmental performance, from fixating on the deadweight costs of *ex post* regulatory compliance, to focusing on the *ex ante* opportunity costs represented by

environmental pollution." (Al-Tuwaijri et al., 2004: 3). More and more companies worldwide are adopting integrated reporting standards.

Regulation and the legal environment are not immune to the relationship between sustainability and business. Governments and stock exchanges are trying to keep the pace with the advancements of sustainability reporting; some of them around the world require or strongly encourage companies to provide sustainability reports or similar disclosures. In South Africa, for example, companies listed on the Johannesburg Stock Exchange must either produce an integrated report with both financial and sustainability information or explain its absence (Ernst & Young BC, 2013). Back in 2014, an important change in the European regulation occurred. The European parliament introduced the EU Directive 95/2014, which became effective on January 1st, 2017 for all EU member states. It forces all companies with more than 500 employees to include sustainability information in their financial reports, and it is an important governmental recognition of the increasing importance of CSR issues in the business environment.

I.2 CSR - economic performance relationship

So far, we have seen that sustainability reporting is an actual and wide phenomenon involving different actors and causing important changes to our economies. However, it is not yet clear whether there are any positive economic effects of engaging in CSR disclosure. The economic and financial benefits of sustainability reporting are wide and diverse, making the whole process more than worth its costs for many companies. In other words, for those companies, doing well and doing good are not mutually exclusive. Gathering data and engaging in reporting *itself* usually stimulates positive changes in a firm's processes and activities, hence driving managers to re-think efficiency measures, reduce costs, create a stimulus for eliminating waste and unleash new ways of thinking and space for innovation (Hull and Rothenberg, 2008). Voluntary socially responsible behavior can also help firms reduce compliance costs by avoiding government regulation. Moreover, changes that increase environmental commitment and improve employee welfare can reduce litigation and pollution cleaning costs (Dhaliwal et al., 2011). Finally, CSR-reporting firms are better suited to predict and manage risks emanating from sustainability-related dimensions of business (Ernst & Young BC, 2013).

There is quite an agreement on some other positive effects that CSR investments have on economic measures. Examples are increased product differentiation (McWilliams and Siegel, 2001; Waddock and Graves, 1997), reduced risk exposure (e.g. better risk management) (Godfrey, 2005), and increased employee motivation, retention and recruitment (Edmans, 2011). A negative relationship has been found between CSR disclosure and the cost of equity capital; firms with a high cost of equity capital in the previous year are significantly more likely than others to initiate standalone CSR disclosures. In other words, the cost of equity capital decreases for CSR-initiating firms with superior CSR performance (Dhaliwal et al., 2011). It is very important to note that, when we examine the relation between CSR disclosure and the cost of equity capital, issues such as endogeneity and self-selection arise. In fact, two different effects may occur: on the one hand, companies increase their level of CSR disclosure to reduce past high levels of cost of equity capital. In this case, a positive relation between CSR disclosure and cost of capital is expected. On the other hand, if CSR disclosure has a negative effect on the subsequent cost of equity capital, then the correlation should be negative. Overall, the predominant effect depends on many variables.

I.3 CSR and greenwashing

Greenwashing is a concept often referred to when talking about CSR; it relates to the possibility of firms to influence the overall perception of the company and create noise in their financial information through nonfinancial information disclosure. To the best of our knowledge, most of the literature about the *greenwashing* effect of CSR information has focused on the customers' point of view, meaning that we do not know much about this effect on shareholders' and other stakeholders' perceptions.

CSR disclosure is by nature affected by a company's effectiveness in communicating its efforts. To the extent that this is true, research on CSR should also include the study of traits of human behavior, communication skills and other psychological phenomena. For example, we highlight the role of reciprocity (*reciprocal altruism*), the *halo effect* and the implications of a *costly signaling perspective*[1] (Moratis, 2016).

Unfortunately for companies, skepticism has recently become more widespread among stakeholders. Therefore, attention of CSR managers has focused on how to minimize stakeholders' skepticism and lack of trust (Du et al., 2010, Moratis, 2016). A positive past track of CSR commitment has a positive effect on skepticism, as well as the effectiveness of

[1] Costly signaling theory: voluntary disclosed information is considered honest only when difficult or costly to produce (either in financial terms or in terms of effort).

CSR campaigns. The latter depends on the message content, the channel, and company- and stakeholder-specific factors: corporate past reputation and CSR positioning[2] (Du et al., 2010), perceived congruence between stakeholders' and company's values, stakeholders' support to the CSR cause (Sen and Bhattacharya, 2011), and perceived sincerity of motives to engage in CSR communication. Sincerity in turn is affected by the benefit salience of the cause, the source through which consumers learn about CSR, and the ratio of CSR investments/CSR-related advertising. For example, neutral sources are better than company-controlled sources because commitment will be perceived as sincerer (Vanhamme and Grobben, 2016).

In summary, the CSR effect will be most powerful when skepticism is low and perceived sincerity is high, e.g. when the sensitivity of stakeholders to CSR actions is maximum. Consistent with this view, Lys et al. (2012) found that the positive association between CSR investments and economic returns is due to the *signaling* value of CSR, e.g. CSR expenditures signal information about future prospects of the firm.

The implications for this research are diverse and profound; companies may use nonfinancial disclosure not because of intrinsic motives in engaging in CSR but to create noise and positively influence stakeholders' perceptions of the overall economic rating of the company. We will try to empirically understand if this is the case in the business world.

I.4 Research question

As we have seen, the CSR economic implications have been studied from various points of view. However, we think literature so far has failed to address some issues we aim to study in this research.

The problem this thesis strives to understand is the empirical effect of the initiation of voluntary CSR disclosure on a firm's market value, as measured by the stock price. In the first chapter, we highlighted the relevance of the topic for the academic research and the business environment. Next, we will provide a detailed review of current literature. Drawing on past research findings, we propose ourselves to test two different hypotheses that we hope will add new knowledge to the research field of sustainability reporting. It will be followed by a description of the methodology we used to collect data and run the tests. After describing the findings and main results, the research will end with conclusions and limitations of this study. We hope it may be inspiring for further research opportunities.

[2] "the extent to which a company relies on its CSR activities to position itself, relative to the competition, in the minds of consumers" (Du et al., 2010).

II. Literature review

This section will describe the main findings of past literature on CSR disclosure effect on stock price changes. While some strong theoretical models predicting the sign of this effect have been developed, we found a lack of empirical tests. Nonetheless, these models gave us the theoretical background to develop the hypotheses we are going to test in the next chapter. Finally, we will present some important limitations that, in our opinion, have affected literature so far.

II.1 CSR demand and supply

Next, we draw on prior research regarding CSR demand and supply to develop a conceptual framework that will help the understanding of companies' CSR activities. McWilliams and Siegel (2001) introduced a theoretical framework to study the concept of CSR and its economic implications. Their model focuses on the forces that shape demand and supply of CSR, and determine the optimal level of investment at the firm and market level.

Demand for CSR can be split into demand from consumers and demand from other stakeholders (investors, employees, community, etc.). Theoretically, different types of stakeholders ask for different types of nonfinancial information (Meek et al., 1995), and they have different expectations in terms of nonfinancial performance.

Consumers

When consumers perceive a product as embedded with socially responsible attributes, they increase their perception of the firm's reliability, quality and reputation. Therefore, CSR can be used as a differentiation tool in the same way as R&D investment. Consistently, McWilliams and Siegel (2001) have found a positive correlation between CSR and R&D, which results in both CSR-related process and product innovations (McWilliams and Siegel, 2001).

Other stakeholders

Socially aware investors are willing to pay a premium for the securities of socially responsible firms (Richardson and Welker, 2001), thus a positive correlation between consumer income and demand for CSR attributes has been hypothesized (McWilliams and Siegel, 2001). The pressure for additional information is especially strong in the global competitive market for

investment funds for MNCs (Meek et al., 1995). Consistently, Gray, Meek and Roberts (1993) report that MNCs participating in international capital markets disclose significantly more voluntary accounting information than domestic listed MNCs. Advertising can play an important role in raising the awareness of CSR-related investments by firms, hence raising the level of demand. With reference to other stakeholders, "…, a variety of nongovernmental organizations (NGOs) have emerged in an effort to establish codes of conduct and monitor the behavior of corporations." (Campbell, 2007: 957) and they have been increasing their influence over the business world.

When it comes to supply of CSR, the general reason why companies decide to disclose nonfinancial information is that markets are flawed by information asymmetry and agency costs, and disclosure is a means to reduce them.

The debate on to whom companies are accountable (only to shareholders, or to the whole society) and the incentives that drive managers to invest in corporate social responsibility activities dates back to the 1930s, and it touches on the basic role of companies in a capitalist society. The two main theories are the CSR good governance view, as opposed to the CSR agency view. The former posits that the likelihood to be socially responsible is higher for well-governed firms, and that CSR investments can be consistent both with shareholder wealth maximization as well as with social accountability. In well-governed firms, the high alignment between the interests of shareholders and those of managers creates more incentives for managers to engage in CSR. Proponents of the latter, building on Friedman's theory (New York Times Magazine, 1970), argue that CSR investments are the consequence of agency problems within the firm, as they are not intended in the interests of shareholders. According to this second view, managers have an incentive to engage in CSR only to extract private benefits (Ferrell et al., 2017, forthcoming). Using five proxies for measuring agency problems, several instrumental variables to reduce endogeneity problems, and cross-validating their results with multiple samples, Ferrell et al. (2017, forthcoming) find strong empirical evidence supporting the CSR good governance view. Furthermore, they find that CSR can even be used as a tool to reduce the negative effects of agency problems on firm value.

However, part of the academic research tends to forget that CSR does not come without a cost, e.g. firms must devote a portion of their resources to engage in CSR activities. For example, embodying products with CSR attributes often requires additional resources, which

result in higher costs. In fact, scale and scope economies related to the supply of CSR activities have been hypothesized (McWilliams and Siegel, 2001). The voluntary disclosure decision is affected by the (perceived and actual) costs associated (Meek et al., 1995), and by the potential opportunity to gain competitive advantage through differentiation (Ernst & Young, BC, 2013). Examples of such costs are information collection and processing costs, litigation costs and political costs (Meek et al., 1995).

Among the reasons that drive firms to disclose more of their nonfinancial performance are increased transparency with stakeholders, improved risk management, stakeholder pressure, seek of competitive advantage, increased brand/reputation image, and company culture (Ernst & Young BC, 2013). Large companies are more likely to report than small companies (Meek et al. 1995; Ernst & Young BC, 2013). Moreover, voluntary nonfinancial information disclosure has been found to be a particularly European phenomenon (Meek et al., 1995). Usually, firms initiating to publish CSR reports will continue to disclose CSR information in the future, a concept often referred to as *stickiness of CSR disclosure* (Simnett et al., 2009; Dhaliwal et al., 2011). Prior disclosures may become the lower bound for future CSR disclosures, as investors expectations will increase (Al-Tuwaijri et al., 2004).

II.2 CSR - stock price relationship

Some forms of socially responsible behavior will increase the present value of a firm's future cash flows, thus increasing the firm's market value. However, not all socially responsible activities have a positive effect on the present value of a firm's future cash flows. Nonetheless, they may have a positive indirect effect on the corporate market value. Current literature should focus on both types of investments when investigating the corporate social responsibility effect (Mackey et al., 2007).

Mackey, Mackey and Barney (2007) study under what market conditions engaging in socially responsible activities has a positive effect on a firm's market value. Under the assumption of semi-strong efficient capital markets (Fama, 1970), all publicly available information will affect the market price of the underlying assets. Specific to CSR, this assumption implies that whenever firms publicly disclose their CSR activities, investors will automatically include this information in their valuations and it will be reflected in market prices. Semi-strong efficiency suggests that whatever public information about the value of a firm's assets is, on average, likely to be reflected in the price of those assets (Fama, 1998). Under this

assumption, the stock price equals its fundamental value, the discounted sum of expected future cash flows (by definition). Mackey, Mackey and Barney (2007) also recognize the importance of extending the model with the literature about emotional and cognitive factors that influence investors' decisions in financial markets (Tversky and Kahneman, 1974). Orlitzky's model (2013) does so suggesting that behavioral finance is a more appropriate framework for the study of equity markets. Under this hypothesis, investors decisions are based not only on the available public information on business activities, but also on other beliefs which are typically called *investor sentiments* (e.g. Shiller, 2003). Those beliefs about future cash flows and the investment risk are not justified by economic facts, instead they are dependent on (endogenous) social and psychological factors.

The two models by Mackey, Mackey and Barney (2007) and Orlitzky (2013) differ with respect to the basic assumptions on financial markets, but they share important assumptions and results and we consider them as highly complementary. Both predict that under certain demand and supply conditions, CSR can raise a firm's market value. More specifically, whenever demand for CSR investments is greater than supply, companies can increase their stock price by filling the gap, e.g. by engaging in socially responsible activities and making this information publicly available.

Hypothesis 1.

When firm i starts to disclose sustainability information,

its stock price, P_i, will increase.

If we define θ as the proportion of socially responsible investors, and ω as the proportion of socially responsible firms, in equilibrium:

$$\omega = \theta$$

The first implication of this result is that firms which earlier change their status from non-socially responsible to socially responsible will be able to raise their stock price more than latecomers (e.g. there are first-mover advantages) (McWilliams and Siegel, 2001; Barnett, 2007). A further implication is that benefits decrease over time, and they end up being zero in equilibrium.

Moreover, if we define P_{SR} as the stock price of socially responsible firms, and P_{PM} as the stock price of non-socially responsible firms, in equilibrium:

$$P_{SR} = P_{PM}$$

This equation is crucial to understand the process and the kind of incentives firms face when the economy is out of equilibrium, and that make stock prices increase. If demand is greater than supply, the arbitrage condition allows companies who invest in socially responsible activities to increase their market value, as measured by the stock price, even when those investments have a negative effect on the present value of the firm's cash flows.

II.3 Extending the model

Orlitzky (2013) explains the mental processes driving the investors to buy more of these stocks, highlighting the role of CSR. If the hypotheses of behavioral finance and irrational markets are true, CSR is only used as a tool to create financial *noise.* Technically, noise can be defined as all the information unconnected to a company's economic prospects. Since the impact of CSR (disclosure and) performance is still blurry after more than 40 years of empirical research, we may consider it as financial noise. Research has not been able to draw definitive conclusions (Simnett et al., 2009; Margolis and Walsh, 2003; Orlitzky et al., 2003). Since the effect on the economic performance is not clear, CSR information is difficult to interpret and therefore "most investors are unable to distinguish between true and […] false market signals of CSR" (Orlitzky, 2013: 243), e.g. they cannot base their investment decisions on clear causal logics. The problem is amplified by the information asymmetry intrinsically present in financial markets; managers have an incentive to send false signals about their strategic commitment to CSR. Moreover, the blurry boundaries of CSR activities and the weak legislative constraints make it even more manipulation-prone than other types of information. The voluntary base of much CSR information and the lack of sanctions and rules are other factors raising the incentive. In other words, CSR signals are weak, dirty and misleading as there is no clear differentiation between noise and valuable information. If the assumption of inefficient capital markets holds, stock prices are likely not to be economically justified. Whenever such increases are economically unjustified, they lead to excess market valuations, e.g. stock price bubbles. Moreover, many investors may interpret past price increases of socially responsible companies as causal evidence of the economic effect of CSR and predictive of future price increases, thus reinforcing the cycle. Orlitzky argues that, when

noise is present in an equity market, it will accumulate over time. "Market participants, like all human decision makers, tend to eschew rational utility calculations in favor of decision-making shortcuts (Kahneman, 2003; Shiller, 2003) because, typically, it is costlier to acquire valid information about specific company characteristics than to rely on rules of thumb" (Orlitzky, 2013: 7). Therefore, investors have only little incentive to filter out noise from their financial investment decisions. Logically, if noise is present in equity markets, security prices no longer represent fundamental economic values, because they will reflect noise.

Hypothesis 2.

Sustainability reports are used as a tool

to create noise in stock markets.

As seen so far, a consistent and important stream of research suggests that - no matter the assumption on the efficiency of financial markets - stock prices of companies who make socially responsible investments will increase if demand is greater than supply. To our knowledge, there are not any studies testing the validity of these models. Yet, in the end, whether voluntary CSR disclosure raises a firm's stock price is an empirical question. Most studies (e.g. Jeffers and DeGaetano, 2013) have focused on the empirical question of whether sustainable companies enjoy greater company value than non-sustainable companies. In this paper, we take a different perspective: we aim to study whether there is an increase in the company value after firms start to engage in sustainable activities.

II.4 Past literature limitations

As we have seen, the impact of corporate social performance on the firm's financial performance has been studied with mixed results. Margolis and Walsh (2003) note that much of past research focused on the *association* between social and financial performance, failing to explain the causal link driving it. Empirical studies should always consider the key difference between association and causality, and be aware of reverse causality and endogeneity problems in the regression specification. The Granger causality methodology can disentangle causality from association, even if there is not statistical test that can definitively establish cause and effect, as noted by Lev, Petrovits and Radhakrishnan (2010). Literature

has also been enriched with meta-analysis of past studies, but the final results still remain inconclusive (see, for example, Orlitzky, 2001; Margolis and Walsh, 2003). Several researchers have found a positive correlation between CSR and economic performance. Some argue that the effect is mediated by a positive impact on future sales growth, which in turn is mediated by customer satisfaction (Lev et al., 2010). Saeidi et al. (2014) suggest that a direct effect is not a good test specification, and they consider competitive advantage, reputation and customer satisfaction as possible mediators. Other researchers did not find any relationship between social responsibility and profitability (Aupperle et al., 1985; McWilliams and Siegel, 2001). The study by Jeffers and DeGaetano (2013) suggests that the relationship between sustainable and economic performance can vary widely depending on what kind of economic indicators are considered (e.g. ROA, ROE, EBITDA, Market capitalization, etc.). There might be some degree of correlation among them, however, comparisons between empirical studies should always consider the variables used. Al-Tuwaijri, Christensen and Hughes (2004) provide an interesting contribution: they follow Ullmann (1985) approach, stating that *strategy* should be included as an independent variable in empirical research, as it jointly affects CSR and economic performance. Obviously, endogeneity significantly affects the statistical significance of estimated correlations. To correct for endogeneity, they use a system of simultaneous equations. As Lys, Naughton and Wang (2012) correctly point out, it might be the case that the anticipation of future financial performance leads firms to undertake CSR initiatives in the current period, rather than the other way around. As a consequence, managements' private information about the future prospects of the firm is an omitted variable in most specifications of regression models in past literature. Lev, Petrovits and Radhakrishnan (2010) suggest that *management quality* might be another omitted variable that simultaneously affects both social and economic performance.

As theory has improved, many of the shortcomings of past research have been corrected. Stronger theories have been proposed, as well as more and better controls for previously omitted variables. Yet, the question of whether CSR generally brings a positive financial return remains without a definitive answer. Overall, the effects of corporate social responsibility on corporate financial performance vary across firms and over time (Barnett, 2007). We propose two different critics to past empirical studies, and at the same time two possible explanations of this uncertainty of results.

First, the common approach of empirical research is to study the statistical difference in the economic performance between socially responsible firms and non-responsible firms.

Furthermore, most of these studies consider CSR at a certain point in time, not over time (Margolis and Walsh, 2003). This approach does not consider the effect of the initiation of CSR investments on the long-run economic performance at the firm-level. In fact, even if no difference is found between socially responsible and non-socially responsible firms, theoretically it is still possible that socially responsible firms improved their economic performance with respect to the past, when they were non-responsible.

The second critique is slightly more articulated. We argue that it is not possible to define a universally valid rule for CSR effects, as returns to CSR are contingent, not universal (Ullmann, 1985). The overall impact will widely depend on the *ability* of the firm to manage CSR investments, an intangible asset. The uniqueness and complexity of CSR lies in its essence; CSR is intrinsically directed towards outside the company's boundaries, and success of CSR policies necessarily depends on the interrelation with stakeholders, beyond the firm's effort itself. Managers of CSR-successful firms should know the importance of involving stakeholders in their CSR strategy, thus increasing the overall value created (*stakeholder management theory*. Freeman, 1984). Therefore, we argue, the variability of past empirical studies is not surprising; firms differ a lot in terms of the managers' ability to involve stakeholders and to integrate CSR activities into the company's strategy. Furthermore, CSR is very context-dependent, thus increasing variability even more (Barnett, 2007; Campbell, 2007). As we have seen before, in some industries the firms' social accountability is much higher than in others. Also, different regulation policies and legal protection of investor rights can widely affect CSR policies (Ferrell et al., 2017, forthcoming). There are several other factors influencing corporates CSR investments; demography, for example. CSR activities aimed at reducing the environmental footprint are perceived very differently in US and in Thailand, or by baby boomers and millennials. Geography and the geo-political landscape are other examples. This argument explains why CSR return on investment might also vary over time within the same firm (the presence of a learning curve of CSR investments might be hypothesized). Consistent with our point of view, Barnett (2007) suggests that "…the actions of a firm and the responses by its stakeholders in regard to CSR are path dependent such that different firms obtain different results from CSR, depending on their unique histories" (Barnett, 2007: 803). Following the same argument, literature on institutional analysis in sociology and literature on comparative political economy in political science have contributed to the understanding of the conditions under which companies are more likely to act in socially responsible ways than not. In fact, the way corporations treat their stakeholders

strongly depends on the institutions within which they operate. Factors affecting companies' behavior are: public and private regulation, law enforcement, the presence of nongovernmental and other independent organizations, and others. Furthermore, the level of competition may influence firms' attitudes towards sustainability investments; for example, CSR commitment can be used a signal to create and sustain competitive advantage over competitors (Campbell, 2007). Overall, we argue, the nature of CSR itself and its strong context-dependency make it almost impossible to demonstrate a universal theory explaining the effect of CSR on economic performance. Instead, as Barnett (2007) points out, researchers should try to develop a theory that can explain heterogeneity. "CSR cannot financially please all of the corporations all of the time, but it can please some of the corporations some of the time. Researchers should try to figure out which ones and when." (Barnett, 2007: 813).

III. Methodology

As previously anticipated in Chapter 2, we propose ourselves to run two different tests to advance knowledge in the field of CSR reporting. Partially consistent with McWilliams and Siegel (2001), among others, we define CSR as instances where the company engages in actions that appear to advance social causes, including committing to environmental and human rights protection, providing community support, and so forth. In practice and academic research, CSR is often used interchangeably with *sustainability;* we also follow this convention (Dhaliwal et al., 2001).

Even if some voluntary nonfinancial information may be disclosed also in financial annual reports, this dissertation will follow the approach of Dhaliwal, Li, Tsang and Yang (2001), which only consider the information disclosed in standalone CSR reports. The main reason is that these forms of disclosure differ in terms of depth and breadth of CSR coverage, and standalone reports may also reflect a stronger commitment of the company to its CSR activities and to improve transparency. Moreover, standalone CSR reports are on average more comprehensive and more detailed than CSR information included in financial annual reports. Furthermore, a voluntary disclosure of CSR activities shows a firm's confidence in its CSR performance; when strong, it allows to send a positive signal, when poor, it allows for explanations (Dhaliwal et al. 2011). In addition to standalone CSR reports, we will include the so-called *integrated financial reports* (cfr. Chapter 2), the frontier of sustainability reporting that many MNEs have already started to adopt.

Hypothesis 1

Assumption 1: in the last decades, there has been an excess demand over supply for CSR investments.

$$\theta > \omega$$

Where θ is the proportion of socially responsible investors in society, and ω is the proportion of socially responsible firms in society.

Even if it is difficult to test the validity of this assumption, we find it reasonable to assume an excess demand over supply for CSR investments. Increased public awareness as well as social, economic, and governmental forces are driving companies to adopt important changes

in their objectives and include CSR activities in their strategies. All in all, companies feel strong and urgent pressures to increase their CSR activities (e.g. Al-Tuwaijri et al., 2004; Jeffers and DeGaetano, 2013).

Assumption 2: a portion of investors takes firms' socially responsible activities into account when they make investment decisions.

$$0 < \theta, (1-\theta) < 1$$

where θ is the proportion of investors who is responsive to socially responsible investments and who take nonfinancial information into account when they make their investments decisions, e.g. *socially responsible investors*, and $(1-\theta)$ is the proportion of non-socially responsible investors in the society, e.g. investors who make only economic and financial considerations in their decision-making process.

Most studies on CSR focus on the effects of CSR performance; in this study, we take a slightly different approach. "The business returns are contingent on stakeholders' awareness of a company's CSR activities. Much of the academic research to date … has largely presumed or mandated … CSR awareness on the part of the relevant test populations." (Du et al., 2010: 3). The level of CSR performance, we argue, is not *per* se sufficient to explain changes in price due to CSR activities; to do so, CSR commitment must be effectively communicated to stakeholders. The strategic importance of CSR lies in its power to change stakeholders' perceptions, therefore, it is crucial for companies to be able to communicate their sustainability performance in the most effective way. This is the main reason why we decided to focus on CSR reporting, rather than just the quality and the level of CSR performance themselves. Disclosure and reporting are directly linked to investors' beliefs, while performance itself is not. The first implication of our choice is that poor-performing companies in terms of CSR could, hypothetically, be able to reap higher gains than high-performing ones, if they are better communicators. Even if this might seem a market distortion, we think it is a good representation of reality. A second natural consequence of our approach is that companies adopting CSR behaviors without engaging in any kind of reporting, will not be included in this research.

Since our aim is to study whether CSR disclosure increases or undermines shareholder wealth, e.g. whether CSR reporting is beneficial for corporate value, market definitions of firm performance seem more appropriate than accounting definitions (Margolis and Walsh, 2001; Al-Tuwaijri et al., 2004). Therefore, we are going to measure the value created (or

destroyed) by socially responsible disclosure using the stock prices of firms listed on stock exchanges. Stock prices define a firm's market value, when multiplied by the number of its shares outstanding. Aupperle, Carroll and Hatfield (1985) argue that stock prices are unable to reflect on a firms' profitability. Since we are not focusing our conclusions on profitability, rather on corporate market value, this critique will have no influence on our results.

In particular, we aim to understand the consequences of starting to publish social and environmental information versus not publishing. We will assume that the first sustainability report published by company i in year t coincides with the start of CSR activities of company i. We are aware that by doing so we are excluding firms who adopt socially responsible behavior with no intention to make it public, but they fall out of scope of this study. Also, they are the minority of cases. To conclude, let us remember that our aim is to understand the effect of the start of CSR disclosure, thus stressing this assumption would not change the results.

For *Hypothesis 1*, we conducted a *paired sample t-test*, to test whether a difference existed between the situation prior and after the first disclosure.

$$H_0 : \left(\frac{P_i^E - P_i^B}{P_i^B}\right)_t - \left(\frac{P_i^E - P_i^B}{P_i^B}\right)_{t-1} = 0 \,, \forall\, i$$

or

$$H_0 : \gamma_t - \gamma_{t-1} = 0$$

$$vs$$

$$H_1 : \gamma_t - \gamma_{t-1} > 0$$

where

- P_i^E : $stock\ price\ of\ firm\ i\ at\ the\ End\ of\ the\ period\ considered$
- P_i^B : $stock\ price\ of\ firm\ i\ at\ the\ Beginning\ of\ the\ period\ considered$
- $\gamma_t = \left(\frac{P_i^E - P_i^B}{P_i^B}\right)_t$: $\%\ change\ in\ stock\ price\ of\ firm\ i\ in\ year\ t$

If H_0 is rejected, H_1 accepted, then *Hypothesis 1* will be verified; starting to publish CSR information increases a firm's stock price.

For our purpose, period t for firm i will always be the starting year of CSR reporting, whilst period $t-1$ will be the previous year. For example, Deutsche Bank published its first CSR report in 2002, then $t = 2002$, and $t - 1 = 2001$.

To refine our test, for each year we will take into consideration the time lapse ranging from $April, 1st$ to $July, 1st$, because all the company considered publish their financial and CSR reports within these two dates. As Lys, Naughton & Wang (2012) point out, disclosure should manifest its effect during a relatively short window surrounding the period in which the market learns of the signal. A further refinement of this type of test would be to study the difference in change of stock price taking into consideration the exact publishing date, when available. Stock market data have been downloaded from the Thomson Reuters Eikon (Datastream) database.

In other words, we would like to understand whether adding CSR reports to the information publicly available to investors has a positive or negative impact on stock prices movements, compared to the years in which CSR information was not available. We aware of the shortcomings of the way the test was conducted; we will not be able to separate completely the portion of change due to *CSR information* from the portion of change due to *financial information* and the one due to *other expectations*.

In formulas,

$$\gamma_t - \gamma_{t-1} = \alpha + \beta + \varepsilon$$

where

$\alpha = portion\ of\ change\ due\ to\ CSR\ information$

$\beta = portion\ of\ change\ due\ to\ FINANCIAL\ information$

$\varepsilon = portion\ of\ change\ due\ to\ other\ expectations$

Whereas separating ε from the other two might be very difficult, we see the separation between α and β as a natural consequence of our research. It will probably be not possible using real stock markets data, but such an experiment could be conducted in a laboratory environment by presenting different types of information to different samples of investors.

Finally, let us say we conducted our research on firms listed in major European stock exchanges. We decided to focus on those firms included in the following stock indexes: FTSE

MIB (Milan, *Borsa Italiana*), IBEX 35 (Madrid, *Bolsa de Madrid*), DAX 30 (Frankfurt, *Deutsche Boerse AG*) and PSI 20 (Lisbon, *Euronexxt Lisbon*).

Hypothesis 2

To test *Hypothesis* 2, we first had to build a measure to capture:

- the level of easiness (difficultness) to find information about company *i*
- the level of clarity of information for company *i*

We did this both for CSR and financial information. Since the values for CSR and financial measures had to be comparable to be informative, we tried to keep them as similar as possible by using objective indicators. Further refinements might include more subjective measures and reports content analysis.

For each company, *CSR transparency index* and a *FIN transparency index* were built, using the following data:

Reports

Company reports for financial years 2015, 2014 and 2013 were included. For each of them, we considered the number of pages, the number of words per page, whether or not contacts of the responsible office were indicated, whether or not it had been assured by one of the 'big 4' auditing companies (Lys et al., 2012). Each of the components of the index weighted equally.

Websites

Company websites as of 20/02/2017 were included. For each of them, we considered the number of clicks to get to the *download link* of the report, whether or not there was a link to sustainability/financial information in the *top link bar,* which one of the two links to the CSR or financial reports appeared first browsing in the page. Each of the components of the index weighted equally. *CSR_index* values were obtained as the sum of two subindexes: *CSR_index_R*, the portion of CSR transparency index due to information disclosed in sustainability reports; and *CSR_index_W*, the portion of CSR transparency index due to sustainability information disclosed in the website. *FIN_index* values were obtained as the sum of two subindexes: *FIN_index_R*, the portion of financial transparency index due to information disclosed in financial reports; and *FIN_index_W*, the portion of financial transparency index due to financial information disclosed in the website.

Only companies included in the FTSE MIB index (Milan, *Borsa Italiana*) were considered.

For *H2*, we conducted a *one sample t-test*, to test whether a difference existed between CSR and FIN transparency index.

$$H_0 : \delta_i^{CSR} - \delta_i^{FIN} = 0$$

$$vs$$

$$H_1 : \delta_i^{CSR} - \delta_i^{FIN} < 0$$

where

- $\delta_i^{CSR} : CSR\ transparency\ index\ for\ company\ i$
- $\delta_i^{FIN} : financial\ transparency\ index\ for\ company\ i$

If H_0 is rejected, H_1 accepted, then *Hypothesis 2* will not be verified; CSR information is not used as a tool to create financial noise in the market.

IV. Results

In Table 1 and Table 2 we report the number of firms in our sample by stock index and describe them with respect to 3 variables: market value (MV), number of shares outstanding (NOSH), turnover by volume (VO).

Hypothesis 1

117 observations, corresponding to 117 companies, were available. Among them, we excluded 34 firms which never published any CSR reports to date. Among the remaining observations, stock prices were not available for further 14 companies; they were excluded as well. We started our analysis with 69 observations. 4 observations were flagged as outliers (Exhibit 4 – Table 1); we decided to take 3 of them out of our sample because they significantly affected the final results.

Our definitive sample was composed by 66 observations (companies), characterized as follows. DAX, FTSE MIB and IBEX 35 were almost equally represented in the sample (Table 1). Companies listed in the DAX (*Deutsche Boerse AG*) index were the biggest with respect to market value, but they also had the highest variability (*mean=32,557.34, std dev=28,566.03*). Companies listed in the PSI 20 (*Euronexxt Lisbon*) were by far the least represented of the sample (only 5 observations), and they were also the smallest in terms of market value (*mean=2,548.57*) and turnover by volume (*mean=5,651.68*). FTSE MIB (*Borsa Italiana*) and IBEX 35 (*Bolsa de Madrid*) companies were similar with respect to number of outstanding shares (*mean=2,740,627.23* and *2,505,574.16*, respectively), both with a very high std dev (*std dev=4,270,587.69* and *3,619,453.35*, respectively). With respect to turnover by volume, variability of the sample is quite high.

Table 1.

Stock index	N. oss	Variable	Label	N	Mean	Std dev	Min	Max
DAX	20	MV	MV	20	32,557.34	28,566.03	8,633.34	110,941.30
		NOSH	NOSH	20	643,695.55	549,121.84	129,242.00	2,201,098.00
		VO	VO	20	138.44	368.79	3.30	1,664.90
FTSE MIB	22	MV	MV	22	13,393.90	13,473.89	2,124.49	48,334.64
		NOSH	NOSH	22	2,740,627.23	4,270,587.69	165,349.00	15,859,790.00
		VO	VO	22	88,454.13	199,063.44	2,979.40	912,700.60
IBEX 35	19	MV	MV	19	18,138.49	21,272.25	60.89	86,167.00
		NOSH	NOSH	19	2,505,574.16	3,619,453.35	55,896.00	14,582,340.00
		VO	VO	19	58,825.00	121,229.97	865.10	516,972.90
PSI 20	5	MV	MV	5	2,548.57	2,144.91	340.80	6,071.26
		NOSH	NOSH	5	749,361.60	788,396.86	24,000.00	2,000,000.00
		VO	VO	5	5,651.68	9,484.44	33.90	22,366.10

The difference between prior and after the first disclosure resulted in a *mean* of the 66 observations of *-0.0278*. The sample standard deviation was *0.1519* with confidence interval at *99%*. As shown by the graph, the variable d*ifference* approximately follows a normal distribution, and the value of H_0 falls into the confidence interval. In fact, the *p value* of the test is quite high: *0.9291*, so we cannot reject the *null hypothesis* H_0, e.g. *% change year t = % change year t-1*. In other words, our findings indicate that starting to publish CSR reports does not affect stock price changes: *Hypothesis 1* is not verified.

Paired t-test for H0: price change difference between year t and year t-1 = 0

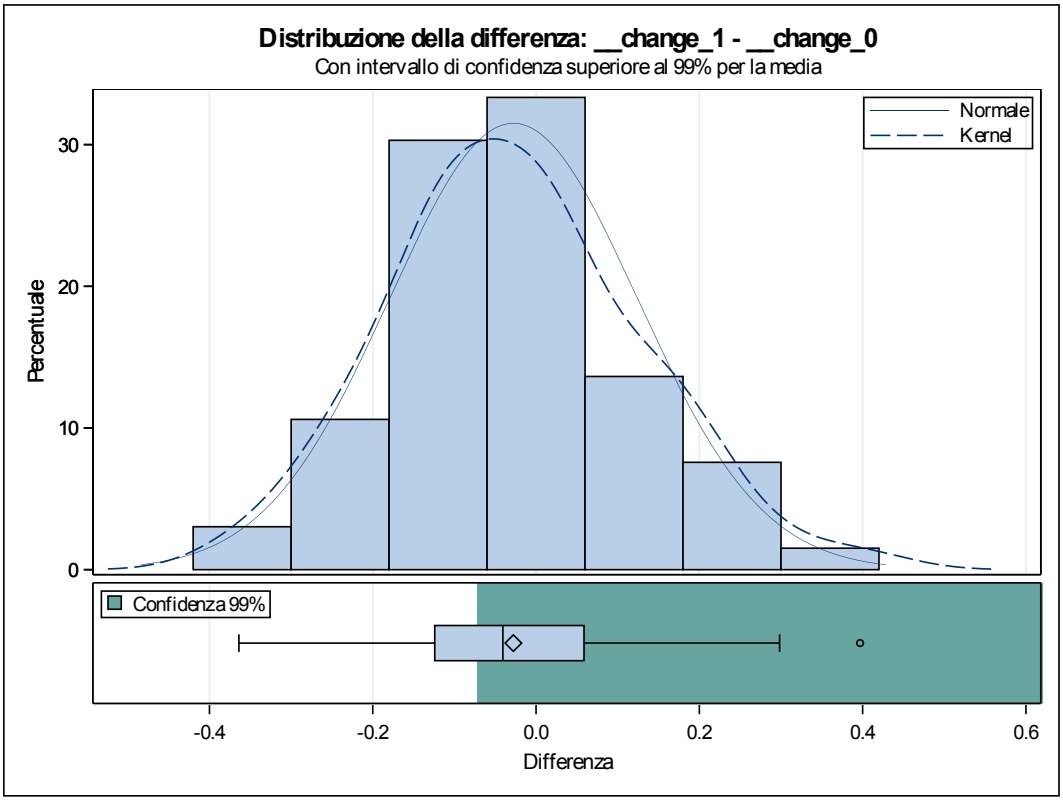
TTEST procedure

Difference: % change t - % change t-1

N	Mean	Std dev	Std error	Min	Max
66	-0.0278	0.1519	0.0187	-0.3640	0.3969

Mean	CL Mean at 99%		Std dev	CL Std dev at 99%	
-0.0278	-0.0724	Inft	0.1519	0.1237	0.1952

DF	t value	Pr > t
65	-1.49	0.9291



Hypothesis 2

120 observations composed our initial sample, corresponding to 40 companies, 3 years each. Among them, we excluded 47 observations because their *CSR index* equaled 0, meaning either that the companies did not publish any sustainability report, or that the report was not available for that year. Among the remaining observations, for one of them we could not find the financial report, hence it was excluded from the sample.

We started the analysis with 72 observations. 3 observations were flagged as outliers (Exhibit 4 – Table 2); we decided to take 2 of them out of our sample because they significantly affected the final results. Our definitive sample was composed by 70 observations, characterized as follows.

Consistently with the descriptive statistics for *Hypothesis 1*, the values for market value, number of shares outstanding and volume overhead are coherent with the FTSE MIB values (Table 2). CSR index values (Table 3) are significantly lower than the corresponding FIN index values in the sample (*mean CSR=9.4640, mean FIN=20.3359*) but with a higher variability (*std dev CSR=15.1740, std dev FIN=12.8079*), but we will test whether this difference in the means is statistically significant through the following one sample t-test.

Table 2.

Stock index	N. oss	Variable	Label	N	Mean	Std dev	Min	Max
FTSE MIB	25	MV	MV	25	14,460.84	14,474.13	2,124.49	48,334.64
		NOSH	NOSH	25	2,880,603.24	4,309,994.46	165,349.00	15,859,790.00
		VO	VO	25	89,132.33	187,574.55	2,979.40	912,700.60

Table 3.

Variable	Label	N	Mean	Std dev	Min	Max
CSR_index	CSR index	70	9.4640	15.1740	-22.9456	36.3745
FIN_index	FIN index	70	20.3359	12.8079	- 4.5126	49.4389

The one sample t-test for the difference between CSR and FIN index resulted in a *mean* of the 70 observations of *-10.8719*. The sample standard deviation was 16.7647 with confidence interval at 99%. As shown by the graph, the variable *difference* approximately follows a normal distribution, and the value of H_0 does not fall into the confidence interval. In fact, the

p value of the test is lower than *0.0001*, so we reject the *null hypothesis* H_0 and we accept the *alternative hypothesis* H_1, e.g. *CSR index value < FIN index value*. In other words, our findings indicate that CSR information is not used to create noise in stock markets: *Hypothesis 2* is not verified.

One sample t-test for H0: transparency index difference between CSR and FIN = 0

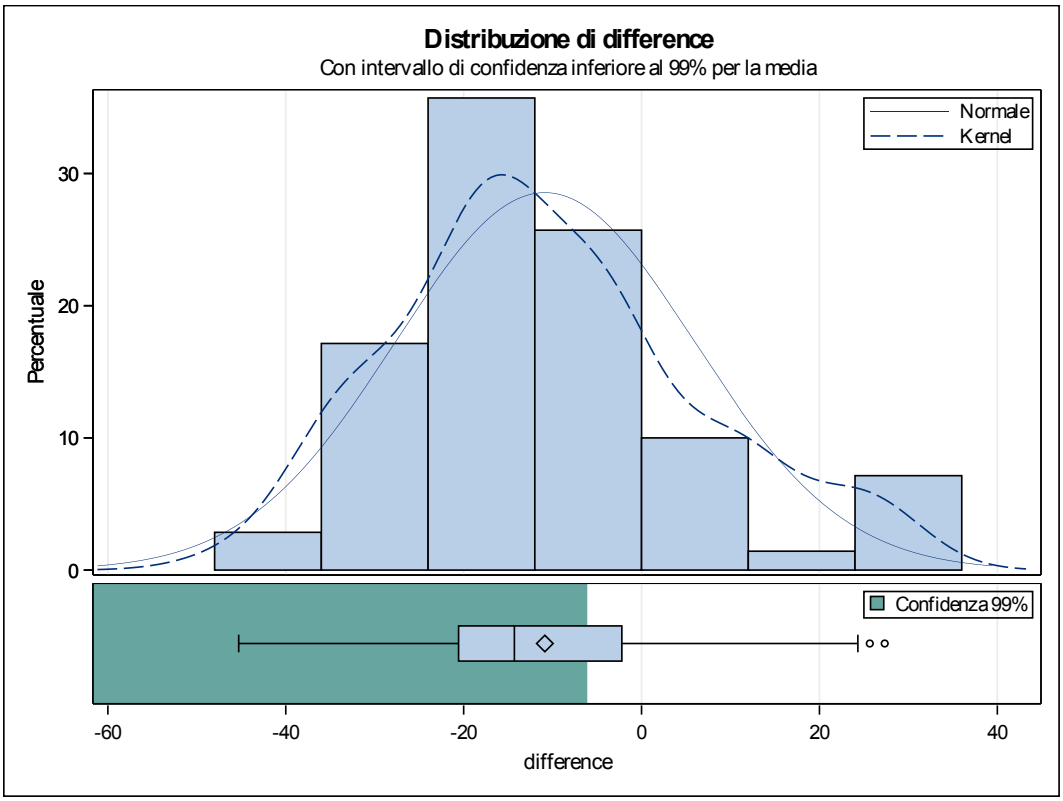
TTEST procedure

Difference: difference (difference)

N	Mean	Std dev	Std err	Min	Max
70	- 10.8719	16.7646	2.0038	- 45.2919	27.3384

Mean	CL Mean at 99%		Std dev	CL Std dev at 99%	
-10.8719	-Infto	-6.0997	16.7646	13.7217	21.3627

DF	t value	Pr < t
69	-5.43	<.0001



V. Conclusions and limitations

A stream of past research suggests firms to invest in CSR activities that are most visible to customers and other stakeholders to increase their economic benefits (Moratis, 2016). When it comes to stock exchanges, our findings suggest that CSR disclosure *per se* is not sufficient to raise a firm's stock price. More specifically, we have found that starting to publish CSR reports does not statistically affect the difference in change in stock price from year t and year $t-1$. There may be multiple interpretations: first, investors do not take into account CSR information when they make choices about which firms to invest in. Second, investors consider CSR information but it does not affect their decisions in a significant way. Third, the portion of change due to CSR disclosure on stock prices is statistically compensated by the portion of change due to financial information, thus the final effect is statistically equal to zero. Our findings seem to suggest to investors not to consider the level of CSR disclosure in their decision-making process. However, this study was limited to the effect of the first CSR disclosure; it may be the case that repetitive disclosure throughout several years is beneficial for stock prices. Also, when it comes to the decision in which companies to invest in, potential (or actual) investors may be interested in the *relative* CSR performance and disclosure with respect to direct competitors, or to the other firms included in the stock index.

As regards the second hypothesis tested in this study, we have found that companies do not intentionally use the CSR information they publish as a tool for greenwashing financial information. More specifically, the transparency level of financial information disclosed through annual reports and the online website is *higher* than the transparency level of sustainability information disclosed through the same channels. Hence, CSR information is not used to create noise. This result may be very specific to the countries we decided to focus on; we think it may not be valid in different economic and social situations, e.g. developing countries, due to the different incentives and challenges firms face in those regions of the world. Moreover, we believe that the innovative way we used to measure greenwashing opens various venues for future research.

Finally, we gave possible explanations for the inconclusiveness of past results on the CSR effect on economic performance and proposed refinements for future research in this field.

We now point out some of the limitations we see in our study and advance possible solutions.

As previously anticipated, the main limitation of our test design of *Hypothesis 1* is that we were not able to separate completely the CSR effect from the financial effect. The difficulty of testing the validity of the theoretical models presented in Chapter 2 lies in the mixed effect of real stock prices movements due to different factors. One way to conduce a more robust test would be to simulate a stock market environment in a laboratory and presenting different types of information to two samples of investors. Still, we believe that our research adds knowledge to current literature since it is the first study, to the best of our knowledge, trying to test the CSR signaling effect on stock price changes, and may be a good starting point for further refinements. Future research may also consider shortening the temporal window of the stock price change, e.g. taking into consideration the day of disclosure. Moreover, since capital markets have been significantly volatile in recent years, as noted by Jeffers and DeGaetano (2013), our final results may have been distorted. Lastly, as pointed out in the literature review, the overall impact of CSR disclosure on stock prices is likely to reflect the influence of the legal and the institutional environment which the firm is settled in, as well as the presence of the halo effect, the past track record of CSR activities and other company-specific factors. One way to reduce the country-specific factors effect is to use CSR performance ratings based on the *relative* performance of firms to their peers (Ferrell et al., 2017, forthcoming).

With reference to *Hypothesis 2*, as previously noticed, the main shortcoming is the lack of examination of the content of CSR reports. The measures we considered do not completely capture the level of sustainability disclosure of each company, nor the quality of CSR activities. Despite being objective, they can be quite easily manipulated by firms to increase the level of transparency. For example, by simply adding pages with images to CSR reports, companies can increase their *CSR transparency index*. A qualitative examination of the content of reports would have meant to reduce the number of companies included in the sample, but it would have made the results less susceptible to greenwashing, thus stronger. If future researchers decide to take this different approach, they will need to balance objectiveness and qualitative measures.

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http://www.statisticssolutions.com/manova-analysis-one-sample-t-test/

Appendix

Exhibit 1. First CSR disclosure

ID_Obs	Company	Stock index	First CSR disclosure
1	A2A	FTSE MIB	2008
2	Atlantia	FTSE MIB	2013
3	Azimut	FTSE MIB	n.a.
4	Banca Mediolanum	FTSE MIB	2007
5	Banca Bpm	FTSE MIB	2004
6	Bca Mps	FTSE MIB	n.a.
7	Bper Banca	FTSE MIB	2013
8	Brembo	FTSE MIB	2017
9	Buzzi Unicem	FTSE MIB	2004
10	Campari	FTSE MIB	2013
11	Cnh Industrial	FTSE MIB	n.a.
12	Enel	FTSE MIB	1996
13	Eni	FTSE MIB	2006
14	Exor	FTSE MIB	n.a.
15	Ferrari	FTSE MIB	n.a.
16	FCA	FTSE MIB	2005
17	Finecobank	FTSE MIB	n.a.
18	Generali	FTSE MIB	2005
19	Intesa	FTSE MIB	2008
20	Italgas	FTSE MIB	n.a.
21	Leonardo	FTSE MIB	2011
22	Luxottica	FTSE MIB	n.a.
23	Mediaset	FTSE MIB	n.a.
24	Mediobanca	FTSE MIB	n.a.
25	Moncler	FTSE MIB	2016
26	Poste Italiane	FTSE MIB	2001
27	Prysmian	FTSE MIB	2012
28	Recordati Ord	FTSE MIB	n.a.
29	Saipem	FTSE MIB	2007
30	Salvatore Ferragamo	FTSE MIB	2016
31	Snam	FTSE MIB	2007
32	Stmicroelectronics	FTSE MIB	1998
33	Telecom Italia	FTSE MIB	1998
34	Tenaris	FTSE MIB	2010
35	Terna	FTSE MIB	2006
36	UBI Banca	FTSE MIB	2002
37	Unicredit	FTSE MIB	2001
38	Unipol	FTSE MIB	1993
39	Unipolsai	FTSE MIB	1993
40	Yoox Net-A-Porter Group	FTSE MIB	2017
41	Inditex	IBEX 35	1998
42	Banco Santander	IBEX 35	2002
43	Telefonica	IBEX 35	2002
44	Banco Bilbao Vizcaya Argentinta	IBEX 35	2006
45	Iberdrola	IBEX 35	2012
46	Caixabank	IBEX 35	2011
47	Amadeus IT Group	IBEX 35	n.a.
48	Repsol YPF	IBEX 35	2005
49	Gas Natural Fenosa	IBEX 35	2002
50	Abertis Infraestructuras	IBEX 35	2003
51	Ferrovial	IBEX 35	2014
52	International Consolidated Airlines Group	IBEX 35	2011
53	Gamesa corporacion tecnologica	IBEX 35	2006
54	ACS actividades de construcción y servicios	IBEX 35	2006
55	Mapfre	IBEX 35	2004
56	Banco Sabadell	IBEX 35	n.a.
57	Bankinter	IBEX 35	2005
58	Enagas	IBEX 35	n.a.
59	Acciona	IBEX 35	2005
60	Mediaset Espana Comunicacion	IBEX 35	2005
61	DIA-Distribuidora Internacional de Alimentos	IBEX 35	n.a.
62	Fomento de Construcciones y Contratas SA	IBEX 35	n.a.
63	Bolsas y Mercados Espanoles	IBEX 35	n.a.
64	Viscofan	IBEX 35	n.a.
65	Indra Sistemas	IBEX 35	2015
66	Tecnicas Reunidas	IBEX 35	2012
67	Sacyr SA	IBEX 35	2006
68	Obrascon Huarte Lain SA	IBEX 35	n.a.
69	Abengoa SA	IBEX 35	2002
70	Banco Popular Espanol	IBEX 35	n.a.
71	SAP	DAX	2008
72	Siemens	DAX	n.a.
73	Bayer	DAX	2013
74	BASF	DAX	n.a.
75	Allianz	DAX	2002
76	Deutsche Telekom	DAX	1996
77	Daimler	DAX	2010
78	Volkswagen	DAX	2011
79	Bayerische Motoren Werke	DAX	n.a.
80	Henkel	DAX	1992
81	Fresenius	DAX	n.a.
82	Continental	DAX	2011
83	Deutsche Post	DAX	2006
84	Adidas	DAX	2000
85	Linde Group (The)	DAX	2005
86	Deutsche Bank	DAX	2002
87	Muenchener Rueckversicher	DAX	2001
88	Fresenius Medical Care	DAX	n.a.
89	Beiersdorf	DAX	2003
90	Infineon Technologies	DAX	2016
91	E.ON	DAX	2004
92	Heidelbergcement	DAX	2004
93	Vonovia	DAX	2015
94	Merck KGAA	DAX	2003
95	Thyssenkrupp	DAX	2004
96	Commerzbank	DAX	2005
97	RWE	DAX	1998
98	Deutsche Lufthansa	DAX	1994
99	Prosiebensat 1 Media SE	DAX	2015
100	Altri SGPS	PSI 20	n.a.
101	Banco Comr. Portugues 'R'	PSI 20	n.a.
102	Corticeira Amorim	PSI 20	2007
103	CCT Correios de Portugal	PSI 20	2005
104	EDP Renovaveis	PSI 20	2010
105	EDP Energias de Portugal	PSI 20	n.a.
106	GALP Energia SGPS	PSI 20	2006
107	Ibersol - SGPS	PSI 20	2007
108	Jeronimo Martins	PSI 20	2011
109	Mota Engil SGPS	PSI 20	n.a.
110	NOS SGPS	PSI 20	n.a.
111	Novabase	PSI 20	n.a.
112	Pharol SGPS	PSI 20	n.a.
113	REN	PSI 20	2005
114	Semapa	PSI 20	n.a.
115	Sonae Capital	PSI 20	2001
116	Sonae SGPS	PSI 20	2001
117	Navigator Comp	PSI 20	2004

Exhibit 2. Transparency index. Report

ID_Obs	Company	year	CSR/FIN 1	CSR/FIN 2	CSR index_R	FIN index_R
1	A2A	2015	CSR	FIN	24.0868	21.3170
2	A2A	2014	CSR	FIN	22.4196	20.9929
3	A2A	2013	CSR	FIN	36.1651	21.3802
4	Atlantia	2015	CSR	FIN	34.5162	39.3955
5	Atlantia	2014	CSR	FIN	35.2237	39.5032
6	Atlantia	2013	CSR	FIN	35.9315	39.3547
7	Azimut	2015	CSR	FIN	-	36.5246
8	Azimut	2014	CSR	FIN	-	36.3971
9	Azimut	2013	CSR	FIN	-	36.4010
10	Banca Bpm	2015	CSR	FIN	34.0972	31.7780
11	Banca Bpm	2014	CSR	FIN	34.5604	25.8720
12	Banca Bpm	2013	CSR	FIN	34.7573	27.4630
13	Banca Mediolanum	2015	CSR	FIN	20.1959	25.9230
14	Banca Mediolanum	2014	CSR	FIN	35.1064	21.4225
15	Banca Mediolanum	2013	CSR	FIN	34.1861	23.3271
16	Bca Mps	2015	CSR	FIN	-	26.5208
17	Bca Mps	2014	CSR	FIN	-	32.2593
18	Bca Mps	2013	CSR	FIN	-	31.3723
19	Bper Banca	2015	CSR	FIN	17.9114	24.5813
20	Bper Banca	2014	CSR	FIN	17.6433	26.2355
21	Bper Banca	2013	CSR	FIN	18.4792	26.3048
22	Brembo	2015	CSR	FIN	-	36.2399
23	Brembo	2014	CSR	FIN	-	21.9383
24	Brembo	2013	CSR	FIN	-	22.9842
25	Buzzi Unicem	2015	CSR	FIN	18.9490	21.1640
26	Buzzi Unicem	2014	CSR	FIN	20.2421	21.2996
27	Buzzi Unicem	2013	CSR	FIN	19.9537	21.3014
28	Campari	2015	CSR	FIN	18.7048	38.1176
29	Campari	2014	CSR	FIN	18.5671	38.3311
30	Campari	2013	CSR	FIN	23.9217	23.4844
31	Cnh Industrial	2015	CSR	FIN	26.3947	39.2276
32	Cnh Industrial	2014	CSR	FIN	24.4618	39.2067
33	Cnh Industrial	2013	CSR	FIN	24.0225	38.9380
34	Enel	2015	CSR	FIN	25.4485	26.6815
35	Enel	2014	CSR	FIN	22.4599	26.7104
36	Enel	2013	CSR	FIN	22.6701	25.5800
37	Eni	2015	CSR	FIN	21.0738	41.4403
38	Eni	2014	CSR	FIN	20.9539	41.3239
39	Eni	2013	CSR	FIN	19.9116	41.8946
40	Exor	2015	CSR	FIN	-	25.1077
41	Exor	2014	CSR	FIN	-	25.5220
42	Exor	2013	CSR	FIN	-	25.3125
43	FCA	2015	CSR	FIN	36.8965	25.4457
44	FCA	2014	CSR	FIN	24.7450	25.8180
45	FCA	2013	CSR	FIN	-	-
46	Ferrari	2015	CSR	FIN	-	24.5679
47	Ferrari	2014	CSR	FIN	-	-
48	Ferrari	2013	CSR	FIN	-	-
49	Finecobank	2015	CSR	FIN	-	-
50	Finecobank	2014	CSR	FIN	-	23.5789
51	Finecobank	2013	CSR	FIN	-	-
52	Generali	2015	CSR	FIN	5.8744	38.7905
53	Generali	2014	CSR	FIN	5.4059	38.6721
54	Generali	2013	CSR	FIN	7.6399	24.1015
55	Intesa	2015	CSR	FIN	38.1525	27.9917
56	Intesa	2014	CSR	FIN	37.6413	28.6057
57	Intesa	2013	CSR	FIN	36.1894	28.3913
58	Italgas	2015	CSR	FIN	-	-
59	Italgas	2014	CSR	FIN	-	-
60	Italgas	2013	CSR	FIN	-	-

ID_Obs	Company	year	CSR/FIN 1	CSR/FIN 2	CSR index_R	FIN index_R
61	Leonardo	2015	CSR	FIN	20.6996	22.4158
62	Leonardo	2014	CSR	FIN	21.8667	22.5300
63	Leonardo	2013	CSR	FIN	20.8711	22.5308
64	Luxottica	2015	CSR	FIN	-	22.9562
65	Luxottica	2014	CSR	FIN	-	22.6884
66	Luxottica	2013	CSR	FIN	-	22.6014
67	Mediaset	2015	CSR	FIN	-	25.4436
68	Mediaset	2014	CSR	FIN	-	25.4716
69	Mediaset	2013	CSR	FIN	-	24.9822
70	Mediobanca	2015	CSR	FIN	-	28.1690
71	Mediobanca	2014	CSR	FIN	-	26.0769
72	Mediobanca	2013	CSR	FIN	-	25.7511
73	Moncler	2015	CSR	FIN	33.6719	34.8267
74	Moncler	2014	CSR	FIN	-	20.3555
75	Moncler	2013	CSR	FIN	-	23.0143
76	Poste Italiane	2015	CSR	FIN	-	26.7036
77	Poste Italiane	2014	CSR	FIN	-	27.1677
78	Poste Italiane	2013	CSR	FIN	-	26.8150
79	Prysmian	2015	CSR	FIN	34.6384	24.0589
80	Prysmian	2014	CSR	FIN	34.6332	24.5096
81	Prysmian	2013	CSR	FIN	34.6039	24.0604
82	Recordati Ord	2015	CSR	FIN	-	23.3036
83	Recordati Ord	2014	CSR	FIN	-	23.6210
84	Recordati Ord	2013	CSR	FIN	-	23.4906
85	Saipem	2015	CSR	FIN	36.2790	40.4150
86	Saipem	2014	CSR	FIN	35.8742	40.0570
87	Saipem	2013	CSR	FIN	36.9311	40.2820
88	Salvatore Ferr	2015	CSR	FIN	36.3745	23.5733
89	Salvatore Ferr	2014	CSR	FIN	-	23.4880
90	Salvatore Ferr	2013	CSR	FIN	-	22.8483
91	Snam	2015	CSR	FIN	34.0930	24.3135
92	Snam	2014	CSR	FIN	34.7685	24.7843
93	Snam	2013	CSR	FIN	20.4514	23.9732
94	Stmicroelectr	2015	CSR	FIN	21.7494	23.7614
95	Stmicroelectr	2014	CSR	FIN	26.0282	24.7995
96	Stmicroelectr	2013	CSR	FIN	22.4714	24.0854
97	Telecom Italia	2015	CSR	FIN	37.6422	41.5899
98	Telecom Italia	2014	CSR	FIN	36.5231	42.0721
99	Telecom Italia	2013	CSR	FIN	35.0029	41.2883
100	Tenaris	2015	CSR	FIN	4.1470	35.1532
101	Tenaris	2014	CSR	FIN	4.1736	20.8909
102	Tenaris	2013	CSR	FIN	-	35.0369
103	Terna	2015	CSR	FIN	21.6239	24.5773
104	Terna	2014	CSR	FIN	22.0887	26.3108
105	Terna	2013	CSR	FIN	22.0512	25.9089
106	UBI Banca	2015	CSR	FIN	7.5468	28.3479
107	UBI Banca	2014	CSR	FIN	37.7743	28.2134
108	UBI Banca	2013	CSR	FIN	37.1202	28.1020
109	Unicredit	2015	CSR	FIN	40.9989	28.2453
110	Unicredit	2014	CSR	FIN	36.3993	28.3196
111	Unicredit	2013	CSR	FIN	23.1981	27.6707
112	Unipol	2015	CSR	FIN	36.6718	23.1893
113	Unipol	2014	CSR	FIN	-	23.7991
114	Unipol	2013	CSR	FIN	37.0254	23.6808
115	Unipolsai	2015	CSR	FIN	-	22.3092
116	Unipolsai	2014	CSR	FIN	6.0555	23.0516
117	Unipolsai	2013	CSR	FIN	-	-
118	Yoox Net-A-Pc	2015	CSR	FIN	-	23.8901
119	Yoox Net-A-Pc	2014	CSR	FIN	-	-
120	Yoox Net-A-Pc	2013	CSR	FIN	-	-

Exhibit 3. Transparency index. Website

ID_Obs	Company	year	CSR/FIN 1	CSR/FIN 2	CSR index_W	FIN index_W
1	A2A	2015	CSR	FIN	- 28.5714	-
2	A2A	2014	CSR	FIN	- 28.5714	-
3	A2A	2013	CSR	FIN	- 28.5714	-
4	Atlantia	2015	CSR	FIN	-	- 14.2857
5	Atlantia	2014	CSR	FIN	-	- 14.2857
6	Atlantia	2013	CSR	FIN	-	- 14.2857
7	Azimut	2015	CSR	FIN	-	-
8	Azimut	2014	CSR	FIN	-	-
9	Azimut	2013	CSR	FIN	-	-
10	Banca Bpm	2015	CSR	FIN	- 14.2857	-
11	Banca Bpm	2014	CSR	FIN	- 14.2857	-
12	Banca Bpm	2013	CSR	FIN	- 14.2857	-
13	Banca Mediolanum	2015	CSR	FIN	- 14.2857	14.2857
14	Banca Mediolanum	2014	CSR	FIN	- 14.2857	14.2857
15	Banca Mediolanum	2013	CSR	FIN	- 14.2857	14.2857
16	Bca Mps	2015	CSR	FIN	-	- 14.2857
17	Bca Mps	2014	CSR	FIN	-	- 14.2857
18	Bca Mps	2013	CSR	FIN	-	- 14.2857
19	Bper Banca	2015	CSR	FIN	- 14.2857	-
20	Bper Banca	2014	CSR	FIN	- 14.2857	-
21	Bper Banca	2013	CSR	FIN	- 14.2857	-
22	Brembo	2015	CSR	FIN	-	14.2857
23	Brembo	2014	CSR	FIN	-	14.2857
24	Brembo	2013	CSR	FIN	-	14.2857
25	Buzzi Unicem	2015	CSR	FIN	- 14.2857	- 14.2857
26	Buzzi Unicem	2014	CSR	FIN	- 14.2857	- 14.2857
27	Buzzi Unicem	2013	CSR	FIN	- 14.2857	- 14.2857
28	Campari	2015	CSR	FIN	- 14.2857	-
29	Campari	2014	CSR	FIN	- 14.2857	-
30	Campari	2013	CSR	FIN	- 14.2857	-
31	Cnh Industrial	2015	CSR	FIN	-	-
32	Cnh Industrial	2014	CSR	FIN	-	-
33	Cnh Industrial	2013	CSR	FIN	-	-
34	Enel	2015	CSR	FIN	-	- 28.5714
35	Enel	2014	CSR	FIN	-	- 28.5714
36	Enel	2013	CSR	FIN	-	- 28.5714
37	Eni	2015	CSR	FIN	- 42.8571	- 28.5714
38	Eni	2014	CSR	FIN	- 42.8571	- 28.5714
39	Eni	2013	CSR	FIN	- 42.8571	- 28.5714
40	Exor	2015	CSR	FIN	-	-
41	Exor	2014	CSR	FIN	-	-
42	Exor	2013	CSR	FIN	-	-
43	FCA	2015	CSR	FIN	- 28.5714	- 14.2857
44	FCA	2014	CSR	FIN	- 28.5714	- 14.2857
45	FCA	2013	CSR	FIN	- 28.5714	- 14.2857
46	Ferrari	2015	CSR	FIN	-	-
47	Ferrari	2014	CSR	FIN	-	-
48	Ferrari	2013	CSR	FIN	-	-
49	Finecobank	2015	CSR	FIN	-	- 14.2857
50	Finecobank	2014	CSR	FIN	-	- 14.2857
51	Finecobank	2013	CSR	FIN	-	- 14.2857
52	Generali	2015	CSR	FIN	- 14.2857	- 28.5714
53	Generali	2014	CSR	FIN	- 14.2857	- 28.5714
54	Generali	2013	CSR	FIN	- 14.2857	- 28.5714
55	Intesa	2015	CSR	FIN	- 14.2857	-
56	Intesa	2014	CSR	FIN	- 14.2857	-
57	Intesa	2013	CSR	FIN	- 14.2857	-
58	Italgas	2015	CSR	FIN	-	-
59	Italgas	2014	CSR	FIN	-	-
60	Italgas	2013	CSR	FIN	-	-

ID_Obs	Company	year	CSR/FIN 1	CSR/FIN 2	CSR index_W	FIN index_W
61	Leonardo	2015	CSR	FIN	- 28.5714	-
62	Leonardo	2014	CSR	FIN	- 28.5714	-
63	Leonardo	2013	CSR	FIN	- 28.5714	-
64	Luxottica	2015	CSR	FIN	-	-
65	Luxottica	2014	CSR	FIN	-	-
66	Luxottica	2013	CSR	FIN	-	-
67	Mediaset	2015	CSR	FIN	-	-
68	Mediaset	2014	CSR	FIN	-	-
69	Mediaset	2013	CSR	FIN	-	-
70	Mediobanca	2015	CSR	FIN	-	-
71	Mediobanca	2014	CSR	FIN	-	-
72	Mediobanca	2013	CSR	FIN	-	-
73	Moncler	2015	CSR	FIN	-	14.2857
74	Moncler	2014	CSR	FIN	-	14.2857
75	Moncler	2013	CSR	FIN	-	14.2857
76	Poste Italiane	2015	CSR	FIN	-	-
77	Poste Italiane	2014	CSR	FIN	-	-
78	Poste Italiane	2013	CSR	FIN	-	-
79	Prysmian	2015	CSR	FIN	- 42.8571	- 28.5714
80	Prysmian	2014	CSR	FIN	- 42.8571	- 28.5714
81	Prysmian	2013	CSR	FIN	- 42.8571	- 28.5714
82	Recordati Ord	2015	CSR	FIN	-	-
83	Recordati Ord	2014	CSR	FIN	-	-
84	Recordati Ord	2013	CSR	FIN	-	-
85	Saipem	2015	CSR	FIN	- 14.2857	- 28.5714
86	Saipem	2014	CSR	FIN	- 14.2857	- 28.5714
87	Saipem	2013	CSR	FIN	- 14.2857	- 28.5714
88	Salvatore Ferragamo	2015	CSR	FIN	-	-
89	Salvatore Ferragamo	2014	CSR	FIN	-	-
90	Salvatore Ferragamo	2013	CSR	FIN	-	-
91	Snam	2015	CSR	FIN	-	- 14.2857
92	Snam	2014	CSR	FIN	-	- 14.2857
93	Snam	2013	CSR	FIN	-	- 14.2857
94	Stmicroelectronics	2015	CSR	FIN	- 14.2857	-
95	Stmicroelectronics	2014	CSR	FIN	- 14.2857	-
96	Stmicroelectronics	2013	CSR	FIN	- 14.2857	-
97	Telecom Italia	2015	CSR	FIN	- 42.8571	- 28.5714
98	Telecom Italia	2014	CSR	FIN	- 42.8571	- 28.5714
99	Telecom Italia	2013	CSR	FIN	- 42.8571	- 28.5714
100	Tenaris	2015	CSR	FIN	-	14.2857
101	Tenaris	2014	CSR	FIN	-	14.2857
102	Tenaris	2013	CSR	FIN	-	14.2857
103	Terna	2015	CSR	FIN	- 14.2857	-
104	Terna	2014	CSR	FIN	- 14.2857	-
105	Terna	2013	CSR	FIN	- 14.2857	-
106	UBI Banca	2015	CSR	FIN	- 14.2857	-
107	UBI Banca	2014	CSR	FIN	- 14.2857	-
108	UBI Banca	2013	CSR	FIN	- 14.2857	-
109	Unicredit	2015	CSR	FIN	- 28.5714	- 14.2857
110	Unicredit	2014	CSR	FIN	- 28.5714	- 14.2857
111	Unicredit	2013	CSR	FIN	- 28.5714	- 14.2857
112	Unipol	2015	CSR	FIN	-	- 14.2857
113	Unipol	2014	CSR	FIN	-	- 14.2857
114	Unipol	2013	CSR	FIN	-	- 14.2857
115	Unipolsai	2015	CSR	FIN	-	-
116	Unipolsai	2014	CSR	FIN	-	-
117	Unipolsai	2013	CSR	FIN	-	-
118	Yoox Net-A-Porter Group	2015	CSR	FIN	-	- 14.2857
119	Yoox Net-A-Porter Group	2014	CSR	FIN	-	- 14.2857
120	Yoox Net-A-Porter Group	2013	CSR	FIN	-	- 14.2857

Exhibit 4. Observations flagged as outliers

Table 1.

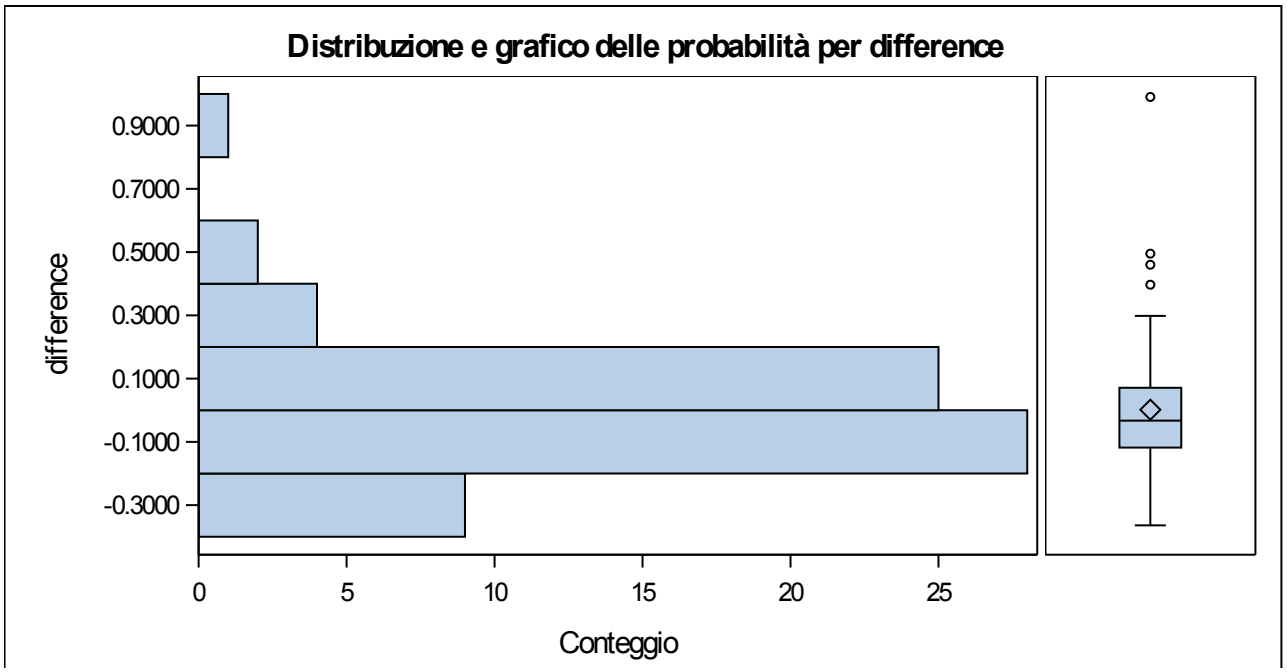

Table 2.