Socially responsible indices: Wealth effects, determinants and mediating factors

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis/project is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Peter Thanh Binh Le

18/03/2016
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Abstract

Does applying an ethical or social conscience to a firm’s operations result in the inefficient allocation of scarce resources? In other words, does corporate social responsibility (CSR) deter the firm from its primary goal of profit maximisation? This thesis investigates this fundamental question through three empirical chapters. In the first empirical chapter (Chapter 3), we apply an event study methodology surrounding announcements of firm inclusion to the FTSE4Good Global Index. Herein, we simultaneously answer whether investors care about CSR, or if indeed CSR is priced by capital markets. In the second empirical chapter (Chapter 4), we explain sources of abnormal returns using firm-specific characteristics and other market-wide factors, which may not necessarily relate directly to sustainable activities, but may influence how the market perceives CSR. As part of this analysis, we focus on the discretionary role/ability to pay as proxy by financial constraints, and consider the important role of institutional trading behaviour, given their large presence and influence in the capital markets of today. In addition, we address the endogeneity issue that may be inherent in our study by employing propensity score matching (PSM). We answer, ceteris paribus, whether institutional investors are punishing those firms found to be engaging in CSR. In our last empirical chapter (Chapter 5), we investigate the strategic motivations behind CSR engagement. In this empirical chapter, our investigation explores across industries and their related sectors. Moreover, we go beyond reporting an association between CSR and corporate financial performance (CFP) by identifying consumer sensitivity as the overarching mediating factor behind most of our prior findings.
Chapter 1: Introduction
1.0 Preface

The theme of environmental protection and social responsibility is often at the forefront of politics, society, and legality. Today, corporate leaders face increasing pressure to apply ethical standards and socially responsible practices in business. However, there is significant ambiguity and uncertainty regarding corporate social responsibility (CSR); from its definitions, purpose, as well role in the corporate vanguard. From a shareholder perspective, the real test of CSR is its ability to transition into sustainable profits. Some proponents argue that CSR is a deflection from the main business of wealth creation, or simply activities of theft and political subversion (Friedman, 1970).

1.1 Summary

The goal of this thesis is to investigate whether corporate social responsibility (CSR) is a value-increasing or value-destroying firm initiative. Scholarly arguments about the relationship between CSR and firm value are based on two main perspectives. According to Friedman (1970), firms that engage in CSR do so to the detriment of maximising shareholder value. On the other hand, stakeholder theory (Donaldson and Preston, 1995; Freeman, 1984) holds that CSR engagement can generate important economic rewards beyond the costs required to engage in such activities. Given these opposing views, the requirement to establish an empirical link between CSR and firm value is crucial to provide corporate credibility to continue CSR activities. Against this background, this thesis provides a comprehensive empirical analysis on the wealth effects of CSR through three empirical chapters.
In the first chapter, we apply an event study methodology surrounding announcements of firm inclusion to the FTSE4Good Global Index. By analysing how the underlying price of a firm changes given its announcement of social index inclusion, we can isolate the unique contribution of CSR less the mitigating effects of confounding factors. Further, we assume announcements of social index inclusion are proxy for high CSR activities – given many inclusion criteria require a substantial commitment of firm resources (Barnea and Rubin, 2010; López et al., 2007). Consequently our analysis reveals CSR commitment is significantly associated with negative abnormal returns.

In the second empirical chapter we explain sources of these negative abnormal returns. The findings from our cross-sectional analysis show low abnormal returns are significantly associated with the following firm characteristics:\footnote{Note that each finding reported in this section should be read as independent of all other findings.} firms with high dividend payments, as CSR may impose additional risk to future income (Rakotomavo, 2012); firms with low financial performance, as CSR may incur additional resources that the firm cannot spare (Roberts, 1992); firms with high cash holdings, as CSR may be perceived to be inappropriate due to costly external financing (Dittmar et al., 2003); volatile cash flows (Opler et al., 1999) or greater financial constraints (Almeida et al., 2002); firms with high asset growth, as CSR may impede firms that tend to reinvest profits through expansion or acquisition (Penrose, 1995); and firms with high commitment to capital expenditure, as announcements of social index inclusion can be seen as a subtraction of cash flows from future capital expenditure.
decisions (see for example, Griner and Gordon, 1995; Fazzari et al., 1988), or unwise due to the high capital intensive environment (Korajczyk and Levy, 2003).\textsuperscript{2}

In addition, we also examine the mediating role of institutional investors. Consideration of institutional investors is important because their presence and underlying behaviour can dictate to a large degree market reaction to CSR. Our analysis reveals that negative abnormal returns are significantly associated with institutional selling (current versus post quarterly holdings) and firms with high investor turnover (indicative of institutional short-term or myopic behaviour). Our evidence regarding announcements of social index inclusion suggests that institutional investors are adverse to CSR. As CSR is generally considered a long-term investment with high costs and long payback periods (Keinert, 2008; Coffey and Fryxell, 1991), this finding is consistent with the notion that institutional investors are motivated by short-term objectives (Magnet and Labate, 1993; Graves and Waddock, 1994). Moreover, Barnett (2007) emphasises the time required, arguing that only firms with a genuine commitment to CSR will likely realise the full long-term benefits of such an investment.

From the preceding results it may be reasonable to conclude that one of the major sources of negative abnormal returns is the selling activity of the institutional investor. However, there is

\textsuperscript{2} In particular McConnell and Muscarella (1985) find announcements of decreases in capital expenditures lead to significant negative stock returns for industrial firms. While they do not link decreases in capital expenditure to CSR expenses, in principle (and according to our findings) this extension is possible. That is, announcements of CSR commitment can be seen as unsustainable given a firm’s current high commitment to capital expenditure. This can by extension increase the risk of future announcements of decreases in capital expenditure. Similarly, while there are no studies directly linking high cash holdings to CSR, we argue due to the inherent characteristic of this variable (that is, volatile cash flows, high financial constraints), the extension to CSR in principle is possible.
every reason to believe that CSR inclusion is in fact endogenously determined by many of the same firm-specific features that affect changes in institutional ownership. Therefore a fundamental evaluation problem arises, via a question of causality – whether movements in institutional ownership are a direct consequence of CSR announcement, or in fact determined by some other endogenous variable. Thus in our fourth chapter, we control for endogeneity problems that may be inherent in our study by employing propensity score matching (PSM). In this, we find institutional owners – ceteris paribus – are punishing those firms found to be included to the FTSE4Good Global Index.

In our last empirical chapter, we examine how CSR engagement can be used strategically to enhance firm value. Our study here is achieved via two stages. First, we ask, ‘Who benefits by doing good?’ and address this question by investigating across industries and their underlying sectors.³ Our analysis reveals important differences in CSR wealth effects across industries and their underlying super-sectors. For instance, we find the Health Care and Oil & Gas industries experience positive market reactions, while Industrials, Technology, Telecommunications and Utilities experience negative market reactions. An analysis at the super-sector level reveals the underlying performances of these industry results. For instance, while the Industries industry experienced negative abnormal returns, this was driven mostly by the Industrial Goods and Services super-sector, rather than the non-significant effects of Construction & Materials.

In the second stage of this study we identify the mechanism underlying our findings. We find firms primarily serving industrial consumers are adversely affected by their announcement of

³ The Industry Classification Benchmark (ICB) partitions its 10 level 1 industries into 19 super-sectors (level 2).
CSR inclusion. Conversely, we find firms primarily serving the end consumer have positive value effects in relation to CSR announcement. Employing cross sectional analysis finds an unexpected result; firm level considerations such as size, profitability, leverage and financial slack - generally well documented explanatory variables - are not important determinants of the CSP-CFP link. In fact our analysis reveals consumer sensitivity as the overarching mediating factor, one that can potentially explain the heterogeneity in prior research.

1.1 Background

1.1.1 Defining corporate social responsibility (CSR)

CSR is a comprehensive set of policies, practices and programs that are integrated into business operations and supply chains. These are then used to address issues ranging from business ethics, community investment, environmental impact, governance, human rights, and the market place (Balabanis et al., 1998). Further, CSR involves examining the way firms make business decisions; the products and services they offer; their strength in achieving an open and honest culture; their management of environmental ‘footprints’; and their relationships with employees, customers and other key stakeholders (Balabanis et al., 1998). Not surprising then CSR is often referred to under the same terms as ‘business responsibility’, ‘business citizenship’, ‘community relations’, and ‘social responsibility’.

The literature is scattered with various definitions of this term. Friedman (1970) first defines CSR as a way in which “to conduct the business in accordance with shareholders’ desires, which generally will be to make as much money as possible while conforming to the basic rules of society, both those embodied in law and those embodied in ethical custom”. Warhurst (2001) defines CSR more specifically via three major elements: (1) product use and its
contribution to help the wellbeing and quality of life of society; (2) business practices focusing on good corporate governance; and (3) the minimisation of environmental impact, and the equitable distribution of profits across different societies, particular to the host community.

A growing number of scholars argue firms can no longer be seen as purely private institutions, but as social institutions instead (Frederick, 1992; Freeman, 1984; Lodge, 1977). Business has an obligation to society and therefore the role of CSR is to provide a mechanism in which to discuss how best to meet these obligations, as well as examine tools by which the related benefits can be optimally achieved. Angelidis and Ibrahim (1993) define CSR more simply as “corporate social actions whose purpose is to satisfy social needs”. Similarly, Carroll (1979) conveys the idea that CSR represent economic, legal, ethical and discretionary demands that society places on business.

Another CSR theme follows Freeman’s (1984) stakeholder model, in which a firm’s responsibilities go beyond meeting just shareholders’ needs, but to all stakeholders as well (consumers, government, employees, supplies, creditors etc.), whose consideration is crucial to the firm’s success. Corporations are therefore accountable for any actions that may affect the people, community and the environment surrounding the business’s operations (Frederick, 1992). Hill et al. (2007) relate CSR to a hierarchy of economical, legal, moral, and philanthropic actions that influences the quality of life of relevant stakeholders. According to Frooman (1997), the definition of CSR is an action by the firm that substantially affects social stakeholders’ welfare. Similarly, CSR is “a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis” (European Commission, 2001). More broadly, the World Business Council for Sustainable Development (1999) argues “CSR is the commitment of a
business to contribute to sustainable economic development, working with employees, their family, the local community and society at large to improve their quality of life”. Notice this definition includes both social and stakeholder dimensions. Dahlsrud (2008) in a review of the various definitions of CSR find stakeholder and social dimensions are considered equally important based on the frequency of counts in Google searches.

Some scholars believe CSR is characterised by “actions that appear to further some social good, beyond the interest of the firm and that which is required by law” (McWilliams and Siegel, 2001). Thus companies that simply avoid discriminating against women or minorities cannot be considered as acting in a socially responsible manner – but are more accurately simply following set regulations (McWilliams and Siegel, 2001). The authors also note the required decision to follow environmental compliance will not distinguish the firm from its competitors, as most of their peers are affected by the compliance in a similar way. Dowell et al. (2000), Hart and Ahuja (1996), and Russo and Fouts (1997) point out that real benefits to an organisation need to come from more rigorous and proactive forms of environmental performance. Such actions involve changing the way the firm provides its products and services, and a forward-looking management style. Ruggie (2002) goes further by defining CSR as a strategy that encompasses demonstrations of good faith, social legitimacy, and a commitment that goes beyond the financial bottom line. In other words, this definition suggests CSR would be adopted by firms that consider profits to be less or equally important to the broader corporate strategy of maintaining the wellbeing of society.

Barnea and Rubin (2010) however argue that if going beyond entails a deviation from achieving maximum profits, such a social initiative is a waste of valuable resources and potentially a value-destroying strategy. The definition of CSR therefore may be closer to Holme and Watts (2002) who describe CSR as “… finding business opportunities in building
the skills of employees, the community and the government”. Hillman and Keim (2001) further stresses that CSR initiatives can only pay off under the premise that these efforts are in the interest of the company’s stakeholders. Ideally then CSR should be able to improve the quality of stakeholder experiences, while creating a competitive industry advantage by combining issues of social, environmental and economics in the firm’s corporate strategy.

Elkington (2004) further highlights that sustainability requires firms to be financially secure in order to minimise or ideally eliminate negative environmental impact, while demonstrating behaviour consistent with societal expectations.

Tuzzolino and Armandi (1981) provide a motivational theory to explain an organisation’s response to CSR based on Maslow’s hierarchy of needs. CSR allows the firm to fulfil “internal and external self-actualisation needs” (p. 23) which are located at the top of the needs pyramid. Consequently, firms will be in a position to engage in CSR only after they have satisfied three earlier layers of needs. These include ‘physiological’ or ‘survival’ needs fulfilled by corporate profits, ‘safety needs’ provided through dividend policy, integration, conglomeration and competitive position, and ‘affiliative needs’ that can be gained through participation in trade associations, lobby groups, and industry publication.

Lastly, we examine Epstein’s (1987) definition of CSR, in which he emphasises the need to distinguish business ethics from CSR. According to Epstein, business ethics involve decisions or dilemmas about the morality of business actions or decisions. CSR on the other hand relates to the consequences of firm actions, in which CSR is defined as the “discernment of issues, expectations and claims on business organisational actions regarding the consequences of policies and behaviour on internal and external stakeholders” (Epstein, 1987).
Overall, there is a variety of opinions on the definition, scope and basis of CSR, and it is apparent that the expected outcome of CSR will vary according to the definition used. For example, the concept of ‘social responsibility’ encompasses expectations that include simply maximising profits, meeting stakeholders’ needs, fulfilling an obligation to society, satisfying motivational theory, going beyond the law, and going beyond the financial line. This points to the fact that the notion of CSR has evolved without a clear consensus on its meaning or value. In fact, Baron (2001) argues that “corporate social responsibility is an ill- and incomplete-defined concept”.

Given its varying scope and definitions, as well as its often intangible and qualitative nature, we have chosen to view CSR much like an investment proposal. This means looking at CSR in the same way as a firm approaches any other investment decision, accounting for various factors and assessing anticipated benefits and related cash flows. Using a rigorous and systematic approach to CSR is likely to yield the best results by demonstrating the most efficient allocation of scarce resources. In this way, both the firm and society can benefit from socially responsible activities.

1.1.2 Defining corporate social performance (CSP)

Corporate social performance (CSP) has been defined in a number of different ways. One avenue portrays social performance as a multidimensional construct (Rowley and Berman, 2000; Waddock and Graves, 1997), encompassing a company’s efforts to fulfil a number of social responsibilities – including economic, legal, and discretionary (Carroll, 1979). Similarly, Wood (1991), defines CSP as “a business organization’s configuration of principals of social responsibilities, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm’s society relationships”.

Recognising the importance of stakeholder relationships, Wood (1995) later adjusts this definition to define ‘policies, programs, and outcomes’ as “internal stakeholder effects, external stakeholder effects, and external institutional effects”. Some scholars propose CSP is a ‘composite term’ (Jones, 1995; Bendheim et al., 1998), or simply a measurement of how one treats its stakeholders (Campbell, 2007; Clarkson, 1995; Cooper, 2004; Post et al., 2002). Van Oosterhout and Heugens (2006) regard CSP as something that “simultaneously refers to organizational inputs, core transformation processes, and outputs, as well as to the development of more holistic programs concerning corporate values or business ethics”. Despite the abundance of CSP research, scholars still encounter significant concerns in operationally defining the CSP construct (Clarkson, 1995; Wood and Jones, 1995). As a consequence, measures of CSP tend to vary widely, either capturing single, specific dimensions of social responsibility such as philanthropic donations, pollution emissions, employee satisfaction, or broader appraisals of CSP – and often are the sum of these and other individual dimensions (Margolis et al., 2009). Given the various definitions of CSR, it is perhaps unsurprising to note that CSP is similarly ill defined. Therefore at this stage, and for the purposes of this thesis, we define CSP as simply measuring the consequence of CSR actions.

1.1.3 Why do companies engage in CSR?

The main argument expressed by CSR sceptics is that the costs associated with CSR outweigh the financial benefits of the exercise. Thus CSR is a value-destroying proposal and is inconsistent with the principals of shareholder wealth maximisation. Indeed, observers
have noted Merck’s donation of 2.5 billion tablets of Mectizan\(^4\) since 1987 have brought the firm little, if any, financial benefit (Dizik, 2009).

Moreover Murray (2005) argues that some firms are coerced by non-government organisations (NGOs) into committing even more scarce resources, above the minimum requirement of the CSR initiative, due to the obligation of reporting on their sustainability efforts (Murray, 2005). Even worse is that such reports have been shown to contain nothing but ‘hot air’. For example, readers of British Petroleum (BP) sustainability reports may have been impressed by the company’s portrayal of high standards and principals in safety. However, regulators have noted their actual safety culture was poor. For instance, an investigation revealed over the past three years, BP accounted for almost 97% of all violations in the refining industry, with most of these violations classified as ‘egregious, wilful’ (The Centre for Public Integrity, 2010). BP was eventually responsible for the largest accidental oil spill in history, resulting in numerous employee deaths and injuries (Robertson and Krauss, 2010). Thus critics have labelled CSR as “neither strategic nor operational but cosmetic” (Porter and Kramer, 2006).

In contrast, CSR advocates argue that in today’s society firms are judged by more than merely the results they achieve, but rather how they achieve them. CSP can provide the ‘license to operate’ that society demands of successful corporations (Post et al., 2002), establishing legitimacy which can be as important as financial returns in the ongoing success of its operations (Campbell, 2007; Galaskiewicz, 1997). Moreover, a large number of CSR

\[^4\text{The drug Mectizan is used to eliminate river blindness in Africa, Latin America and the Middle East.}\]
advocates argue social activities provide a number of value-increasing benefits. The benefits of CSR engagement are often characterised in the following ways.

Strong social performance can be a proxy for high labour conditions, in which socially responsible firms gain a competitive advantage by attracting, recruiting and retaining high-quality employees. For example, Timberland provides its employees opportunities to take significant paid leave to volunteer for social causes. The company states the motivation behind this social program is to help “attract and retain valuable talent” (Pereira, 2003). Furthermore, increased employee motivation can be a key driver, as “people are seeking meaning at work … and, it has become clear that staff motivation is a powerful bottom-line benefit of corporate responsibility” (Murray, 2007). Recruiters at Target note many job candidates assert “commitment to the community is one of the top reasons they desire to work for the company” (Needleman, 2008). Indeed, there is evidence to show the cost of CSR is more than compensated by benefits gained in employee morale and productivity (Solomon and Hanson, 1985; Turban and Greening, 1997). In particular, Huselid (1995) reports firms that choose to increase ‘High Performance Work Practices’ by one standard deviation, can expect employee turnover to decrease by 7.05 %, rewarding firms on a per employee basis with $27,044 more in sales, $18,641 more in market value and an extra $3,814 in profit.

CSR can create customer-related benefits that lead to higher sales, particularly to consumers who may be more sensitive to social issues. For instance Hindustan Lever Ltd, found that after launching Project Shakti, a social initiative for creating livelihoods for rural woman in India, consumption of its products increased about 20 % (Sood and Arora, 2006). Many

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5 High Performance Work Practices can include incentive compensation, extensive employee involvement and comprehensive recruitment and training.
social initiatives can help reap price premiums or gain increases in market share. For example, NBC’s decision to dedicate more programs to health and social issues attracted significant and increasingly harder to obtain advertising dollars from companies wishing to be associated with the shows’ socially responsible values (Vranica, 2009). Empirically, research indeed shows that adopting CSR approaches can positively affect sales and return on sales (Ruf et al., 2001). Becchetti et al. (2009) note that many previous studies find a positive effect on economic but not financial performance. This seems to indicate that social activities are beneficial to net sales or value added per worker, but not necessarily to shareholder wealth.

Socially responsible behaviour can provide an indication of management skills. Evidence of CSR policy requires commitment to CSR from all levels of the firm, which requires forward thinking and long-term orientated management (Guenster et al., 2011). Moreover, the quality management principle proposes that averting problems in the manufacturing process is better than finding and fixing them after the fact (Imai, 1986). Thus firms with high quality management may be able to avoid issues such as: unsatisfactory human rights protection (Royal Dutch/Shell), reputations of brutality with child labour (Adidas), and more recently the milk poisoning incident in China. These examples show that firms with short-term orientations can suffer significant lawsuits, financial losses and considerable reputational damage. For instance, the news of pesticide content in Pepsi and Coca-Cola beverages in India reduced the sales of both companies by 60% (Financial Express, 2006).

CSR can lead to reductions in production costs, particularly in relation to environmental performance. In economic theory, this relates to the Porter hypothesis, which states that by introducing strict environmental regulations, firms will be inspired and encouraged to enhance productivity and efficiencies at the firm level. In parallel with this notion, firm pollution can therefore be viewed as a sign of inefficiency, with the waste a non-recoverable
cost (Shrivastava and Hart, 1992). Russo and Fouts (1997) put forward the resource view of environmental governance, in which proactive environmental policy requires structural changes to the production and service delivery of the firm. Such initiatives require the development, acquisition, and implementation of new technologies that can lead to economic and competitive advantages compared to their peers. For instance, Walmart was able to save $3.5 million due to changes made in the packaging of their toys. From an environmental perspective, this social initiative was reported to save “3,425 tons of corrugated materials, 1,358 barrels of oil, 5,190 trees and 727 shipping containers” (Wallmart, 2006).

CSR can also be viewed as an important component of a firm’s risk management efforts. In particular, CSR can provide an effective mechanism to avoid or mitigate risks related to compliance, litigation, regulatory constraints, environmental penalties, shareholder activism, and damages to firm reputation. Moreover, companies may take the initiative to self-regulate by reducing emissions or similar, in order to pre-empt legislation that could impose even tighter standards (Bradsher and Revkin, 2001). In addition, the costs of not managing social risks can be substantial. For example, BP’s Deepwater Horizon accident has been estimated to cost the company up to $37 billion in compensation and clean up. At the worst point in the spill disaster, BP shares lost almost half their value (Gregory et al., 2013).

There is growing belief that the advantages and benefits of CSR do not come from simply complying with regulatory requirements, because most intra-industry peers are affected by compliance in a similar way (Guenster et al., 2011). Thus real benefits from social responsibility will likely come from more rigorous and proactive forms of social performance, which require changes in the way the firm delivers and produces its services, and a forward-looking management style (Dowell et al., 2000; Hart and Ahuja, 1996; Russo and Fouts, 1997). This is consistent with McWilliams’ and Siegel’s (2001) definition of CSR,
“as actions that appear to further some social good, beyond the interests of the firm and that which is required by law”. Similarly this means to be responsive to “issues beyond the narrow economic, technical, and legal requirements of the firm” (Davis, 1973). To harness the benefits of CSR, firms must look beyond a narrow view of regulatory compliance.

1.2 Motivations

As CSR becomes more popular, shifting from social trend to social movement (Friedman and Miles 2001), a fundamental question of credibility arises: do firms that engage in CSR do so as a value-increasing exercise, that is to earn higher profits, or do actions associated with CSR hurt the bottom line? In other words, does higher CSR lead to higher corporate financial performance (CFP)?

For the last 40 years scholars have searched for an empirical link between CSR and CFP. Qualitative and quantitative reviews of the literature reveal a body of research filled with varying results. For instance, Peloza (2009) reports 63 % of studies are positive, 15 % to be negative, and 22 % neutral. And despite the majority of studies that conclude an overall positive relationship exists (Roman et al., 1999; Orlitzky et al., 2003; Wu, 2006; Margolis et al., 2009), correlation figures based on meta-analysis between CSP and CFP are relatively small of $r = 0.133$ (Margolis et al., 2009), and $r = 0.18$ (Orlitzky, Schmidt et al. 2003). Consequently, Peloza (2009), notes of the CSP–CFP link: “The relationship is relatively weak; questions of causality are unanswered; and the measures used to examine the business case are inconsistent”. Beginning from this basis, we outline the following motivations for this thesis.
1.2.1 Confounding issues

We argue one of the major flaws of the previous research is that a large majority of these studies investigate the CSP–CFP relationship based on long-term evaluations, which can be exposed to a variety of confounding factors (such as business cycles, competition movements, new product opportunities, etc.). Moreover, Clacher and Hagendorff (2012) note that the long-term performance of firms classified as ‘socially responsible’ may be in part a function of demand by a subgroup of investors. For instance, pension funds that specifically screen for social criteria and that hold their investments unchanged for the long term.

Considering these confounding issues, if the CSR factor is substituting in part or whole for another risk factor, any evidence that corporate sustainability is priced by the capital market becomes only a reiteration of the risk and return relationship. In the same way, any evidence that firms engaging in CSR perform better or worse than their non-CSR counterparts needs to make a distinction on whether financial performance differences are a result of a social factor, an unknown risk premium, or both (Lee and Faff, 2009).

Under the free-market view professed by Friedman (1970), the market is arguably the final arbiter on whether CSR is truly value enhancing (Clacher and Hagendorff, 2012). Therefore what is required is a market evaluation of CSR, one separated from any measurable risk factors and which isolates the unique contribution of CSR. Thus, this study focuses on one aspect of social performance that has received very little attention in the literature, despite its direct ability to circumvent the limitations mentioned above. In this, we refer to the ‘social index effect’ – analysing how the underlying price of a firm changes (through an event study) given its announcement of addition to the FTSE4Good Global Index.
Margolis et al. (2009) note in their meta-analysis of the literature that studies that use an event study are “unique in that they are unusually precise … and when done correctly [McWilliams and Siegal, 1997] confounding events are excluded”. Moreover, event studies can represent the “cleanest evidence we have on market efficiency” (Fama, 1991). Thus our contribution to the literature begins first by isolating a reliable, validated, and significantly ‘clean’ measure of the CSR factor.

1.2.2 Firm-specific issues

Despite the extensive research investigating the link between CSP and CFP, the specific literature investigating the ‘social index effect’ so far consists of only four published studies and three unpublished studies. Since most of these only analyse abnormal returns from a market reaction perspective, and do not consider other aspects of trading activity or firm-specific performances, the literature lacks substantial ability to explain why these abnormal returns occur, how they impact the related finance theories, and the implication of these results, if any, for practitioners. Peloza (2009) notes in his review of the related literature: “This situation leaves the ‘believers’ advocating for CSP based on broad studies that do not address firm-specific issues, and the ‘skeptics’ discounting CSP because the research findings are irrelevant”.

6 Clacher & Hagendorff (2012) and to a lesser degree Doh et al. (2010) are exceptions. Our study, however, uses a considerably larger sample size (n = 651 versus n = 356 as per Clacher & Hagendorff, 2012 and n = 56 as per Doh et al, 2010), a more comprehensive set of explanatory variables (for instance, Doh et al., 2010 examines only two variables), and is able to provide results robust to a global scale (Clacher & Hagendorff, 2012 study UK firms, while Doh et al., 2010 study US firms).
Following this line of criticism, we explain sources of abnormal returns using firm-specific characteristics, which may not necessarily relate directly to sustainable activities, but may reveal in finer detail why the market reacts in such a way. In particular, we focus on examining how financial constraints can impede the economic value of CSR.

### 1.2.3 Presence of a mediating variable

Although examining firm-specific variables is important to assist our understanding of the “isolated pieces of the overall puzzle” (Barnett, 2007), like previous studies there may still remain a large amount of unexplained variance in our research (Orlitzky et al., 2003). The discrepancy in results from past studies suggests the presence of a mediating variable that may be important in influencing market reaction to CSR. In regards to this, Peloza (2009) notes:

> the most important direction for future research lies in understanding, through examination, the mediation process between CSP and financial performance. Capturing the mediation process is essential; first, for understanding how CSP creates business value, and second, for developing leading indicators to assess this value early in the process.

The growth and role of institutional investors have grown substantially over the past 60 years. In the United States for example, institutional ownership has risen from a relatively small market capitalisation of 7% in 1950, to about 67% in 2010 (Tonello and Rabimov, 2010). In 2009, if we consider only the largest 1000 firms in the United States, institutional investors are even more prominent, showing an ownership of about 73% in outstanding equity (Tonello and Rabimov, 2010). Thus one of our key motivations in this thesis is to analyse the
biggest investor group in the market – institutional investors – and how their presence and underlying behaviour can dictate market reaction to CSR.

Our analysis of institutional ownership is motivated by two observations. First, if corporate managers want their stock to remain attractive to institutional shareholders, they must consider the concerns of institutional owners. Therefore an analysis of changes in institutional ownership surrounding CSR engagement can provide important information about policy implications for corporate managers. Second, our analysis of institutional ownership is especially important because the CSR literature has not yet considered the impact of institutional ownership in detail before.

1.2.4 Addressing endogeneity

While there is evidence of changes in institutional ownership associated with CSR events, these could be the result of the regular institutional decisions in relation to balancing portfolios, or alternatively due to other events unrelated to CSR. Thus our next motivation is to address a fundamental problem that almost all microeconometric evaluation studies inevitably have to overcome – controlling for endogeneity. Lack of control here can lead to spurious correlations and thus difficulty in determining direct causality.

Moreover, a caveat in many previous studies is that they treat CSR as an exogenous attribute. It is thus unsurprising that the lack of controlling for endogeneity has led to inconclusive results in the CSP–CFP literature. In a recent review of the literature, Margolis et al. (2009, p 27) note:
the CSP->CFP causal mechanisms needs to be articulated and tested. Too many studies speculate about mechanisms that explain results or end with a call to investigate them. It is time to study mechanisms systematically.

To this end, we ensure our institutional results account for endogeneity by employing propensity score matching (PSM).

1.2.5 Strategic motives – across industries and the consumer sensitivity mechanism

While many studies have analysed the CSP–CFP relationship, with qualitative and quantitative reviews of the literature suggesting a positive relationship does exist “probably; it depends” (Peloza, 2009), we restate the outcome of this potential relationship into an investigation of the strategic motivations of CSR. In particular, we analyse which industries, and then in turn which firms, will be increasing (decreasing) firm value by engaging in CSR. We then examine how these changes in the wealth effects of CSR can be mediated to a large degree by an industry’s sensitivity to consumers.

This analysis is motivated by two key observations.

First, while previous studies have controlled for ‘industry effects’ (industry control variables or a match based on industry are common in studies that use multi-industry samples), the large majority of these have only controlled for the industry effect on corporate financial performance (CFP), and not for the potentially distinct industry effect between CSR and CFP (Hoepner et al., 2010). These studies have therefore implicitly assumed that the CSR–CFP relationship is homogenous across industries.
Moreover, to date only a handful of studies have investigated the CSP–CFP relationship based on specific industries (Ogden and Watson, 1999; Simpson and Kohers, 2002), while even fewer have investigated the moderating effects of a specific industry characteristic (Baron et al., 2011; Hull and Rothenberg, 2008). It appears, to the best of our knowledge, that no studies have yet analysed the effects of CSP and CFP across industries.⁷

Second, we address the view of Margolis et al. (2009, p. 28) who states:

> No matter how well measured the constructs, research must move beyond simply assessing the magnitude of the CSP–CFP relationship. Research must now show how CSP comes to bear upon CFP.

Thus we attempt to explain our observed findings by analysing how consumer sensitivity can mediate to a large degree the direction of CSR–CFP performance.

Based on the aforementioned motivations of this thesis, we outline the following objectives and key questions.

### 1.3 Objectives

1. To determine shareholder wealth effects in relation to the announcement of inclusion in a social index.
2. To understand the determinants of the valuation effect due to inclusion in a social index.
3. To investigate the mediating role of institutional investors.
4. To address the endogeneity issue that is inherent in our study.

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⁷ With the exception of one working series paper by Hoepner et al. (2010).
5. To test whether CSR is a strategic engagement by firms to retain market value.

1.4 Key questions

The key questions of this thesis are:

1. What are the shareholder wealth effects of an announcement of inclusion in the FTSE4Good Global Index?
2. Are firm characteristics important for understanding the market reaction to an announcement of inclusion in the FTSE4Good Index?
3. What is the mediating role of institutional investors?
4. Once endogeneity is controlled for, can changes in institutional ownership be attributed to CSR?
5. Are firms that are more consumer conscious likely to benefit more from their investment in CSR?

1.5 Contributions

The basis of our research is to investigate whether corporate social responsibility (CSR) is evaluated as value increasing or value destroying. The literature investigating CSR effects on firm value can be divided into either short-term or long-term studies. This thesis is conducted from a short-term perspective (through an event study), which we argue is highly desirable given that long-term studies may be inherently exposed to confounding factors. As studies in CSR and firm value have been largely based on this latter category, many of our contributions to the short-term literature are arguably more significant and reliable. Moreover, our research employs data at the firm level (in contrast to studies who analyse at the fund level) which we argue is exceedingly warranted given the direct firm implications of CSR activities. Below
we outline our main contributions to the short-term literature (and where appropriate to the literature as a whole – that is, long term plus short term studies), followed by our minor contributions which are mostly data related.

1.5.1 Main contributions

Note: all contributions are described to the best of our knowledge:

- Our study is one of the first in the short-term literature (that is, social index literature) to find characteristics of financial constraints (such as dividend payout, capital expenditure, and cash holdings) to impede the economic value of CSR.

- Our study is one of the first to reveal – ceteris paribus – that institutional investors punish firms found to be engaged in high CSR practices (proxy by inclusion in the FTSE4Good Global Index).

- Our study is one of the first in the general literature to analyse the CSR–CFP link across industries. Subsequently, we show that distinct industry characteristics are important factors in determining the economic value of CSR. These findings provide important implications for practitioners. For instance, our study finds positive firm-value effects in the Banking sector; therefore banks should increase their CSR activities. In contrast, we find negative firm-value effects in the Technology sector; thus CSR activities do not benefit these firms.

- In our analysis of heterogeneity across industries, we find consumer sensitivity is an important strategic motivation behind an industry’s (and their associated firms) decision to engage in CSR. Consequently our research provides evidence to justify CSR – from the perspective of maximizing shareholder wealth – as long as these social activities can be linked to enhancing customer satisfaction, and in turn firm
value. Likewise, we provide evidence to show that firms that cannot link their CSR activities to customer satisfaction (that is, the Industrial sectors) can increase their CFP – all else being equal – by avoiding further expenses in CSR. Establishing this link between CSR and consumer sensitivity is a first in the short-term literature.

- Lastly, our research highlights a potential research caveat, especially for studies that use multi-industry samples. While they have controlled for industry effects on firm performance (CFP), they have failed to control for the industry effects on the CSP–CFP relationship. Therefore the results of many past empirical studies using multi-industry samples may need to be re-examined, or at least cited with greater caution than currently assumed.

1.5.2 Minor contributions

- First, we analyse abnormal returns surrounding announcements of inclusion in the FTSE4Good Global Index – an SRI index that to the best of our knowledge has not yet been comprehensively examined. Analyzing the market reaction of firms’ inclusion in this social index provides a highly visible measure of CSR, separated from any measurable risk factors, and one that avoids the confounding problems of causality. Moreover, since this measure of CSP is evaluated based on a comprehensive set of criteria, which has been externally evaluated and quantified by an independent body, clear and strong signals concerning firm credibility in meeting strict CSR criteria can be captured. In addition, since there are relatively few SRI indices, abnormal price observations during announcement periods should provide an

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8 In so far as Collison et al. (2008) who compares the performance of the FTSE4Good Index to an appropriate benchmark index.
unbiased indicator of the importance of corporate social responsibility (Kappou and Oikonomou, 2012).

- In addition, through an analysis of the FTSE4Good Global Index, we access a sample of firms on a global scale, spanning 24 countries and 656 firms. The nature of this sample has allowed our research to contribute to the literature in a number of ways. First, we use the largest dataset to date (651 firms versus 356 firms in Clacher and Hagendorff, 2012). Second, as we are the largest study in this field to use a global sample, we can analyse with greater robustness the implications of social index inclusion on a global scale. Moreover, our global perspective is motivated by studies that suggest CSR may differ in implementation and outcome relative to each country context. Given these differences are still unclear, our study is important to provide further evidence within this research field.

- We are the first in the CSR literature to consider institutional ownership based on two dimensions: changes to institutional ownership – a comparison of current and post quarterly institutional holdings surrounding the announcement of a firm’s inclusion in a CSR index – and institutional investment horizon – measured via the weighted average churn rate of a firm’s investor turnover. To the best of our knowledge, neither institutional variable has yet been considered in the CSR literature. Previous studies have used one-point-in-time yearly measures of institutional ownership, either ‘the number of institutional investors’ (Coffey and Fryxell, 1991; Graves and Waddock, 1994; Mahoney and Roberts, 2007), or the ‘total percentage holdings of institutional
shareholdings’ (Graves and Waddock, 1994; Johnson and Greening, 1999; Mahoney and Roberts, 2007).

1.6 Structure of the thesis

The remainder of this thesis is structured as follows. In the second chapter we discuss the neo-classical arguments underlying the relationship between CSP and CFP, as well as providing a general literature review of the major findings in this research field. In the third chapter we determine the shareholder wealth effects on announcements of inclusion in a social index. The fourth chapter explains the observed wealth effects by examining the impeding role of financial constraints, and the mediating influence of institutional ownership. With reference to the latter hypothesis, this chapter also controls for the endogeneity issues inherent in our institutional results. In the fifth chapter, we analyse CSR value across industries and test consumer sensitivity as a strategic motivation. In the sixth chapter we present a discussion and a conclusion to this thesis.
Chapter 2: Theoretical background and general literature review
2.0 Introduction

For the last 40 years, scholars have searched for an empirical link between corporate social performance (CSP) and corporate financial performance (CFP). One of the first studies to undertake such an investigation is Bragdon and Marlin (1972) which asks a simple question: is pollution profitable? The authors find a positive relationship between CSP and CFP, and subsequently concluded that they have made “… a step in the direction of laying to rest the economic model that poses the alternative” (p. 17). Yet even after numerous articles, books, dissertations, and working papers, this largely identical empirical question of the relationship between CSP and CFP continues to be investigated with no clear consensus. Recently, Wu and Shen (2013) state: “we examine the relationship between CSR and CFP in the banking sector by using global banking data”. Ultimately while quantitative and qualitative reviews of the literature suggests an overall positive relationship exists “probably; it depends” (Peloza, 2009), there may be no simple yes or no answer to this performance question (Margolis et al., 2009).

Therefore to understand how future research can address and advance this empirical question, it is prudent to first lay the groundwork surrounding the current research field between CSR and CFP. This chapter aims to provide an understanding of the theoretical basis of CSR engagement and a general literature review of studies investigating the CSP–CFP link. More specific literature regarding our individual contributions will be explored further in the respective empirical chapters.

This chapter begins first by examining the key theoretical arguments underlying CSR engagement, and which dictate the basis on which CSR should lead to higher or lower CFP. With these arguments in the foreground, we study the empirical implications in two parts.
First, we review of the most recent meta-analysis, and discuss an overall view of the literature, including any general relationships and common limitations. Second, we review the latest and key studies in the CSP–CFP research field. This section of the literature review is divided into research that finds a positive effect, research that finds a negative effect, research that finds a neutral effect, and research that finds a curve-linear effect. In the last section, we end with a summary and conclusion. In this, we critique the current literature and subsequently identify a direction for future research – the need/ability to isolate a reliable, validated, and significantly ‘clean’ measure of CSR. Appendix 1: Flow Chart 1 illustrates the structure and individual sections of this chapter.

2.1 Background

2.1.1 Is there a theoretical basis?

We note – as of yet – there is no explicit theory linking CSP disclosures to CFP measures. As Wood and Jones (1995) put it, “there is no theory to explain why stockholders would or would not prefer a company that gives one % of pre-tax earnings to charity, that hires and develops minority or women workers, or that ranks higher in pollution control indices”. The consequences of this ‘lack in theory’ are consistent with meta-analysis findings by Orlitzky (2007), who reports that correlation figures between CSP disclosures and accounting CFP measures are small and negative. Similarly, social audits and other observable CSP measures (such as dollar amount of charitable contributions) are found to have correlations of close to zero with market-based measures of CFP. These findings overall are supportive of a CSP literature “… still most accurately seen as a vast collection of disparate views of interpenetrating business and society relationships” (Wood and Jones, 1995). Due to the normative basis (that is, what should be rather than what is) that underlies many of these
relationships, studies have relied on neoclassical arguments to establish a theoretical relationship between CSP and CFP (Wood and Jones, 1995). In the next section, we present these key neoclassical arguments.

2.1.2 Arguments opposing CSR and firm value (value-decreasing hypothesis)

2.1.2.1 Agency theory

Agency theory proposes that a firm exists in a world parallel to a “nexus of contracts” (Jensen and Meckling, 1976) between managers (agent) and their shareholders (principal). When both parties to this contract strive to maximise their utility, conflicts of interest can often arise when managers and shareholders have motivations that are not perfectly aligned. This fundamental problem between the manager and the shareholder is conceptualised by agency theory, which proposes that managers pursue their own personal goals at the cost of maximising shareholder returns.

The opportunities for managers to pursue their own personal goals are several. These include perquisite consumption, empire building, manipulating financial figures to increase bonuses, and enacting antitakeover defences to protect positions. The prospect of managers preferring to enhance personal goals over shareholder value is further highlighted when we consider their actual level of ownership is small in most cases. For example, in a study of large public firms, it was found that 90% of CEOs held less than 5% of the firm (Ofek and Yermack, 2000).

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9 The threat of hostile takeovers is considered as an important disciplining device for incumbent managers. Researchers find poor-performing managers are often dismissed soon after a change of control (Walsh, 1991; Martin, 1991; Furtado, 1990).
Extending agency theory to CSR, scholars argue that CSR activities produce significant managerial benefits that are often obtained to the detriment of maximising shareholder wealth (see for example Atkinson and Galaskiewicz, 1988; Friedman, 1970). For instance, CSR can be used by managers to enhance their personal reputation/image in communities, to gain better career opportunities, and create greater negotiating powers. Moreover, management may pursue certain social initiatives (for example labour-friendly programs) as a quid pro quo, in which key stakeholders may be more likely to ignore managerial excesses, in exchange for socially responsible benefits (such as above-market wages and generous paid parental leave). Therefore, under the premise that shareholders may prefer to use company resources on other activities, such as firm reinvestment or higher dividends, CSR can be argued from an agency theory perspective to be a value-destroying activity.

2.1.2.2 The Friedman view (classical view)

Milton Friedman (1970) emphasises that business has “… one and only one social responsibility … to use its resources and to engage in activities designed to increase profits”. He argues that under the “cloak of social responsibility”, managers exploit CSR as a means to promote their own social, political, or career agendas, imposing costs and reducing returns to the shareholder (McWilliams and Siegel, 2001). According to this view, CSR is seen to neither contribute to nor enhance shareholder value and from a social perspective resources devoted to CSR would be more wisely spent on increasing firm efficiency (McWilliams and Siegel, 2001).

An Economist report estimates a ‘full-fledged’ CSR program would cost a large multinational firm as much as 2 % of total revenue (Economist Intelligence Unit, 2005). Clearly, engaging in CSR activities can entail significant costs to a firm, ranging from community and
philanthropy programs, employee day care, paid parental leave, and the changes in operations needed to minimise environmental footprints. According to a special report in *BusinessWeek* (Berner, 2005), large companies have engaged in significant CSR costs – particularly in charitable donations. For example, Target’s donation of $107.8 million represented 3.6% of its pre-tax profit, Merck’s donation of $921 million represented 11.3% of its pre-tax profits, while Hospital Corporation of America’s donation of $926 million represented a staggering 43.3% of its pre-tax profits.

Moreover the cost of pursuing social missions is further compounded if firms are avoiding lucrative business opportunities due to social concerns or norms, as this, by default, must result in a lower economic performance. Thus Milton Friedman (1970) asserts engagement in CSR is tantamount to managers “approaching fraud” (Friedman, 1970).

2.1.3 Arguments supporting CSR and firm value (value-increasing hypothesis)

2.1.3.1 Stakeholder theory:

Freeman (1984) defines stakeholders as “groups and individuals that can affect, or are affected by, the accomplishment of the organizational purpose”. While Clarkson (1995) provides a narrower definition of stakeholders as those who “bear some form of risk as a result of having invested some form of capital, human or financial, something of value, in a firm”. Whichever the definition one uses, the underlying implication remains the same – each group that holds a ‘stake’ in the firm has a right not to be treated as a means to some end, as their consideration is crucial to the firm’s wellbeing (Freeman, 1984). This statement essentially conceptualises stakeholder theory, in which much of Friedman’s (1970) argument of an ‘all or nothing’ pursuit of profits can be considered rather short-sighted; especially
when we consider the well-accepted rationale that firms need to look beyond the needs of their shareholders if they wish to remain successful.

Given the globalisation of worldwide boundaries and the ease of information sharing due to advances in technology, companies’ actions are being more intensely scrutinised. Thus stakeholder support – or the lack thereof – can often be to the detriment of the firm. When stakeholders no longer have confidence in the firm’s performance, it loses its critical support structure and customer base (Lee, 2008). This can range from customers boycotting products, shareholders dumping stocks, individuals (or bodies) more inclined to pursue legal action over offences, suppliers unresponsive to fairer or more favourable terms, and employees becoming more disgruntled and less loyal. Consequently, any major stakeholder group that withdraws its support for the firm can become adversely affected (Clarkson, 1995).

Further, Lee et al. (2009) highlight the need for firms to consider not only the explicit claims of shareholders and bondholders, but also the implicit claims from their wider range of stakeholders too. For instance, if firms do not adequately manage their implicit claims (such as to not pollute), those affected could seek compensation, and thus transform implicit claims into explicit claims (for example a claim for damages). Moreover, firms displaying poor CSP can influence the views of their other stakeholders, who may cast doubt on the firm’s ability to meet its other claims (Lee et al., 2009). Subsequently, firms with leading CSP reputations may be exposed to lower implicit costs, relative to their lagging CSP counterparts. Overall, stakeholder theory recognises that, by leading CSP performance, companies are able to improve their stakeholder relations, and therefore ensure sustained future success (Prahalad and Hamel, 1994).
The effective management of key stakeholders such as customers, investors, governments, employees, suppliers, and the local community can provide benefits that go beyond merely continued participation (McWilliams and Siegel, 2001). Hillman and Keim (2001) propose managing stakeholders (particularly primary stakeholders) to have the potential to create valuable intangible assets such as reduced employee turnover, increased customer and supplier loyalty, and improved reputation. Moreover, managing ties with key stakeholders can build goodwill, buffering firms from unforeseen problems (Fombrun and Gardberg, 2000) protecting and enhancing corporate brands (Fombrun and Shanley, 1990; Freeman et al., 2007), and providing firms with a competitive advantage (Hart, 1995; Litz, 1996; Rugman and Verbeke, 1998; McWilliams et al., 2002; Branco and Rodrigues, 2006). This, in turn, leads to increasing shareholder wealth (Donaldson and Preston, 1995; Freeman, 1984).

In a recent interview, Freeman (2009) describe stakeholder theory as an important philosophy, where if one focuses on shareholders alone, one misses on what makes capitalism ‘tick’ – shareholders, employees, suppliers, and communities working together “... to create something, that no one of them can create alone” (Freeman, 2009).

2.1.3.2 Resource theory

Underlying the resource-based theory of the firm (Barney, 1991; Penrose, 1995; Wernerfelt, 1984), is the premise that a firm’s ability to outperform its competition depends on the unique interplay of human, organisation, and physical resources over time (Amit and Schoemaker, 1993; Barney, 1991; Dierickx and Cool, 1989). Many scholars in fact now argue that it is the intangible difficult-to-replicate resources that are key to a firm’s ability to outperform its rivals and create value for their shareholders (Atkinson et al., 1997; Teece, 1998; Barney, 1991). Moreover, using know-how or expertise that typically takes years to develop limits a
competitor’s ability to readily replicate these resources (Kogut and Zander, 1992). Common attributes of resources likely to lead to a sustained competitive advantage are those that are valuable, rare, inimitable and non-substitutable (Barney, 1991).

One example of such a resource comes from attaining high levels of CSP, which can generate favourable corporate reputation (Podolny and Phillips, 1996), and lead to a variety of stakeholders showing positive preference. For instance, key stakeholders may be less inclined to engage in relationships requiring significant investments, effort or valuable information, in contrast to positive preferences shown to firms with strong CSP (Adams, 1963). Similarly, suppliers may prefer to be associated with strong social performers, as the cash flows and operations from these firms may be perceived to be less risky to the negative impact of corporate scandal (Godfrey, 2005; Graves and Waddock, 1994). Moreover, customers may be more inclined to purchase products or services from companies that display a higher regard to social performance, especially if the use of that product or service is observable (Brown and Dacin, 1997). In sum, CSR can lead to competitive advantages by creating resources such as reputation, corporate culture, or knowledge assets (Hillman and Keim, 2001; Barney, 1986; Leonard-Barton, 1998; Teece, 1998), which in part or sum can add considerable value to the firm.

2.1.3.3 Social contract theory

Using social contract theory, advocates of CSR argue that social responsibility is a contractual obligation firms have with society. Accordingly, firms must behave in a socially responsible manner, not only because it is in their commercial interest to do so, but also because it is part of what society implicitly expects. Moreover, it is society in the first instance that has allowed firms to use both natural and human resources in the pursuit of their
productive functions and attainment of power status (Donaldson, 1983). The Committee for Economic Development (CED) further notes this social contract is changing in extensive and significant ways:

Business is being asked to assume broader responsibilities to society than ever before and to serve a wider range of human values. Business enterprises, in effect, are being asked to contribute more to the quality of American life than just supplying quantities of goods and services. In as much as business exists to serve society, its future will depend on the quality of management’s response to the changing expectations of the public (CED, 1971, p. 16)

It follows that while this contract may change as societal conditions change, the contract in general will always remain the basis of the legitimacy, demand and need for CSR (Balabanis et al., 1998).

2.2 Key meta-analysis reviews

Before we review the latest and key studies investigating the relationship between CSP and CFP, it is prudent to first examine the latest meta-analysis reviews concerning this field of study.

The meta-analysis of Orlitzky et al. (2003) integrates research between 1972 and 1997. The authors find a positive relationship between CSP and CFP ($r = 0.18$, but after correcting for sampling and measurement error this correlation figure increased to $0.36$).\(^{10}\) The extent to

\(^{10}\) Interestingly, Orlitzky (2007) in a later study suggests the strength of the relationship between CSP and CFP is reliant on the discipline of the researcher, which implies that research in this field is highly subjective and fragmented (Peloza, 2009).
which social responsibility influences financial performance, however, was found to be dependent on the operationalisation of CSP and CFP. For instance, the authors find CSP is more correlated with accounting-based measures of CFP (as oppose to market-based measures of CFP), while CSP measures via reputational indices (such as *Fortune* magazine ratings), were in particular found to have higher correlations with CFP.

In addition, the authors report that differences in previous findings result from ‘study artefacts’, ‘stakeholder mismatching’, and ‘lack of theory’, which wholly or in part can explain between 15 % and 100 % of the variation observed. For instance, the ‘lack of theory’ between CSP disclosures such as charitable contributions, assisting minorities etc., and stockholder preferences (high preferences compared to low preferences) are consistent with findings by Orlitzky et al. (2003) of negative and small correlations between CSP disclosures and accounting CFP measures. Moreover correlations between social audits\(^\text{11}\) and other observable CSP measures (such as dollar amount of charitable contributions) are found to be close to zero with market based measures of CFP.

In the most comprehensive meta-analysis review to date across 251 studies and spanning from 1972 to 2007, Margolis et al. (2009) find that while an overall positive relationship exists between CSP and CFP, this relationship is small (mean \(r = 0.13\), median \(r = 0.09\), weighted \(r = 0.11\)). The last 106 studies in the past decade, in particular, demonstrate even smaller correlations (mean \(r = 0.09\), median \(r = 0.063\)). Thus, the authors conclude, “while not discouraging managers from doing good, [this] seems to provide no pressing financial imperative to do good” (p. 24).

\(^{11}\) Third-party evaluations to assess CSP behaviours such as community service, environmental programmes, and corporate philanthropy (Orlitzky et al. 2003).
Moreover, the literature seems to have fallen short in demonstrating the casual direction of CSP and CFP, both theoretically and empirically. For instance, only 37% of effects studied used CSP measures that precede measures of CSP, a figure surprisingly low if the goal is to establish a causal link (Margolis et al., 2009). The authors suggest that future studies should employ two-stage sample selection models, first to control for the likelihood that firms will engage in CSP, and second to test the relationship between CSP and CFP.

In a systematic review of 159 studies (128 academic studies and 31 practitioner studies), Peloza (2009) reports that 63% show a positive relationship (this figure is reduced to 59% if we only examine the academic literature), 15% show a negative relationship, while the remaining 22% demonstrate a neutral or mixed relationship. The author notes that while this small but positive relationship seems to exist, “probably; it depends” (Peloza, 2009), the relationship between CSP and CFP has not been casually demonstrated. To demonstrate causality, Peloza (2009) highlights the importance of measuring CFP impact as close as possible to the CSP activity.

Moreover, Peloza (2009) emphasises that research in this field provides little guidance to managers on how they should assess the financial impact of their CSP activities. This is likely because commonly used market measures of CFP, such as share prices, or accounting measures such as return on equity and return on assets are inherently confounded by a variety of other factors. CSP activities therefore “tend to be lost in hundreds or thousands of other firm initiatives” unrelated to CSP (Peloza, 2009). Thus, the authors note simply examining CFP, which are essentially ‘end state metrics’, cannot provide the necessarily level of detail for managers to effectively determine an optimal level of CSP investment.
Further, while the majority of studies discussed the mediation process between CSP and CFP, only three of these (at the time of Peloza’s review) carefully investigated the business case for CSP; from initial action, to mediation process, then to final impact to financial performance. However, only one of these three investigated this relationship empirically. Instead, Peloza finds the majority of researchers to rely on the correlations between CSP and CFP. Thus the study concludes:

The most important direction for future research lies in understanding, through examination, the mediation process between CSP and financial performance. Capturing the mediation process is essential; first, for understanding how CSP creates business value, and second, for developing leading indicators to assess this value early in the process (2009, p. 1530).

2.3 Studies on the performance of CSR

In the next section we provide a review of the latest and key studies investigating the relationship between CSR and CFP. We divide studies in this area into research that finds a positive effect, research that finds a negative effect, research that finds a neutral effect, and research that finds a curve-linear effect. Please note, studies specifically relating to our empirical chapters (that is, the literature analysing market reaction to social index inclusion/exclusion etc.), will be examined directly in their respective chapters.

2.3.1 Research that finds a positive effect

Bolanle et al. (2012) collect CSR expenditure data related to the First Bank of Nigeria Plc over a period of almost ten years. Applying ordinary least squares (OLS) regression reveals that every unit change in CSR expenditure leads to a 95 % increase in profit after tax for the
bank. Their results show CSR is crucial for determining the financial performance of banks in Nigeria, and concludes CSR should be integrated with spending culture.

Ehsan and Kaleem (2012) construct a proxy for CSR using data on donations and spending related to the Workers Welfare Fund Ordinance, a requirement by the Pakistani government that companies must disclose the amounts of spending directed to workers’ welfare. Using a sample of manufacturing firms in Pakistan, they find CSR is positively related to accounting base measures of financial performance, particularly those of return on assets (correlation coefficient: 0.276), return on equity (0.267) and earnings per share (0.225).

Goll and Rasheed (2004) find that a firm’s environment is an important moderator in determining the financial consequences of socially responsible behaviour. For instance, they find CSR behaviour provides a positive influence under highly munificent environments (settings supportive of sustained growth and opportunities), as well as dynamic environments (fast-changing and unpredictable settings), in which CSR can create legitimacy and protection, while enhancing social reputation and support. Overall, their results suggest that while socially responsible activities may have their own individual benefits and costs, they may also provide a strong economic rationale under certain types of environments.

Kapoor and Sandhu (2010) use content analysis based on the level of disclosure of several social dimensions including: ‘Community Involvement’, ‘Human Resources’, ‘Environmental Contribution’, ‘Product Contribution and Customer Relations’, ‘Shareholder Relations’, and ‘Rural Development and Diversity’, to construct their CSR scores. Their study shows that based on a sample of Indian firms, CSR has a significant positive influence to corporate profitability. However, CSR and its association with corporate growth (growth in sales and growth in net assets) are found to be insignificant. This result suggests corporate
growth may be due to other factors unrelated to CSR, such as product quality and marketing strategy.

Lev et al. (2010) investigates how corporate philanthropy impacts sales growth. Applying a Granger causality test, their analysis shows growth in charitable contributions is significantly associated with subsequent revenue growth. Upon further analysis, their results were revealed to be specifically driven by industries sensitive to consumer perception such as the retailers and the financial services. The report concludes that customer satisfaction mediates the relationship between corporate giving and sales. For instance, firms that engage in corporate philanthropy activities, particularly those highly sensitive to consumer perception, are able to develop more loyal and satisfied customers, and consequently improve revenue growth.

Despite a large body of evidence showing research and development investment has a strong positive impact on firm profitability, very little research in the CSR–CFP literature directly controls for this variable. One of the first studies to control for research and development expenses (based on a sample of Taiwanese firms), is Lin et al. (2009). Using charitable donations as proxy for CSR expenses, the authors find that with a properly specified model, CSR activities do not necessarily translate to higher profits in the short term. However, upon long-term analysis (over three years), CSR expenses may be instrumental to enhancing financial performance.

Luo and Bhattacharya (2006) develop a conceptual model that proposes customer satisfaction mediates the relationship between CSR and market value. Specifically, they find CSR initiatives enable firms to build a base of satisfied customers, which in turn contributes to higher market value. This is achieved as CSR creates favourable conditions to boost evaluations and perceived value, as well as allowing consumers to identify firms as not only
economic entities – but part of the community and country as well. Furthermore, the study reveals firms with better corporate abilities (that is, innovative capabilities and product quality) tend to generate more market value from their CSR activities. Interestingly, this also implies a ‘dark side’ to CSR, in which social activities reduce customer satisfaction in relation to firms with low corporate abilities. Thus, for these firms, engagement in CSR can harm market value.

Rais and Goedegebuure (2009) survey Indonesian manufacturing firms and their related stakeholders (shareholders, customers, suppliers, employees, and community members) to build a measure of CSP based on the strength of stakeholder relations. They find a stakeholder-orientated approach to social responsibility leads to higher financial performance. This supports the notion that CSP management, particularly that surrounding stakeholder relations, is the driving source of market positional advantage. This is especially the case for industries characterised by heterogeneous demands and imperfect and costly consumer information.

To control for sample bias that may be inherent when analysing CSR effects, Shen and Chang (2009) employ a matching methodology. They construct a control sample of non-CSR firms, which resemble as closely as possible the sample of CSR firms. Through this matching methodology, differences in the two groups can be attributed to the ‘treatment effect’, that is, the CSR factor. Based on a sample of Taiwanese firms, they find CSR firms significantly outperform their otherwise conventional counterparts, with higher pre-tax income and gross margins. The authors conclude that corporate social ambition, at least in Taiwanese firms, produces more ‘gains than pains’.
The US Community Reinvestment Act (CRA) of 1977 mandates that depository institutions serve their communities, low-income customers, and provide private funding for local housing needs and economic development. Using CRA ratings based on the degree of compliance, Simpson and Kohers (2002) analyse how this proxy for CSP is related to the financial performance of a large sample of commercial banks in the US. They find that banks with high social ratings substantially outperform their counterparts with lower social ratings, with the former showing 78% more profitability. Moreover, the group with high social ratings experience only one-half of the loan losses compared with their peers with lower social ratings.

Schnietz and Epstein (2005) analyse whether reputation for social responsibility provides a ‘reservoir of goodwill’ during economic shocks that may otherwise cause significant financial harm to the firm. Examining investors’ reaction to the 1999 Seattle World Trade Organization failure, they find that reputation for CSR provides an insulating effect for this negative shock. In particular, they find when comparing two portfolios representing ‘irresponsible’ industries (such as mining, steel, chemical, energy etc.), the portfolio characterised by high reputations of social responsibility did not experience a significant decline in returns. This was in contrast with the counterpart portfolio (the irresponsible industries without a reputation for social responsibility), which experienced a significant negative cumulative return of about 3%. This translates roughly to an average of US$418 million loss of shareholder value per firm.

During the apartheid period in South Africa, US investment in this country became an important social issue. In fact, whether a firm had investments in South Africa was considered a key measure of CSP. During the 1980s and early 1990s many firms abandoned their operations in South Africa, while others avoided investment or commercial dealings with firms doing business in this country. Kumar et al. (2002) analyse the stock market...
reaction to firms that remained in South Africa during the aftermath of Nelson Mandela’s speech to end the investment boycott – a signal to the world that the apartheid period had ended. Their findings indicate institutional ownership increased at a significantly greater rate (a comparison beginning two years before and ending two years after the lifting of the sanctions) compared with other firms in the market. Moreover, this portfolio of firms experienced significant long-term (40 days) cumulative returns of 5.94%.

Ruf et al. (2001) examine how changes to CSP relate to changes to financial performance. To understand this relationship more clearly, they emphasise that analysis must first recognise a company has contracts with multiple stakeholders. From this perspective, the study develops a composite measure of CSP based on questionnaire data (delivered to each stakeholder group), and the firm’s KLD social rating. They find stakeholders, and particularly shareholders, benefit most when corporate management engages in meeting stakeholder needs. They also find that there are short-term benefits for financial performance, with changes to CSP positively related to increases in sales for both the current and subsequent year. In addition, long-term financial performance (return on equity in the third year) was also observed to experience positive changes to CSP.

As corporations become more concerned about their environmental impact, purchasing managers have also become more focused on these issues. Defining environmental purchasing as “purchasing's involvement in supply chain management activities in order to facilitate recycling, reuse, and resource reduction” (p. 220), Carter et al. (2000) analyse survey data and find environmental purchasing significantly relates to improving net income

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12 Short for Kinder, Lydenberg, Domini Research & Analytics (KLD)
and decreasing the cost of goods. Their results run in contrast to perceptions that these programs are costly and that recycling is uneconomic. In fact, the opposite is found, with evidence suggesting these environmental efforts by purchasing managers can actually improve firm performance.

Environmentalists have long argued that multinational enterprises (MNE) that invest in emerging and developing markets often engage in ‘dirty’ operations. These can range from avoiding pollution controls, reducing costs by recapitalising old equipment, and the continuation of products no longer accepted in more regulated markets. While some MNE’s clearly do employ such practices, what is less evident is whether these firms are gaining any systematic advantage. Dowell et al. (2000) attempt to answer this empirical question by analysing a sample of MNEs drawn from the S&P 500. They find MNE’s that adopt a global environmental standard have higher market valuations compared with firms that default to the less stringent or poorly enforced standards of the host country. This shows firms that pursue high environmental standards can indeed be rewarded for their efforts.

Graves and Waddock (1999) examine whether ‘quality of management’ can mediate the relationship between CSP (as measured by stakeholder relations) and the financial performance of firms. Controlling for ‘quality of management’ via the Fortune reputational index, they find that better-managed firms have better financial performance. This relationship remains strong whether financial performance is measured by a market base (10-year total return to shareholders) or accounting base measure (return on assets and return on equities). In addition, of the stakeholder relationships analysed, only shareholder and employee relations show the strongest association with financial performance, while community relations and product/consumer and environmental ratings experience the weakest.
2.3.2 Research that finds a negative relationship

Brammer (2006) uses disaggregate indicators of social performance (in particular those measuring environment, employment and community activities) to achieve a closer evaluation of the interactions between social and financial performance. The investigation reveals that while the composite social performance indicator is negatively related to stock returns, it is high (good) employment scores that contribute most to this negative relation, rather than to a lesser extent other social aspects. Moreover, as the analysis is driven by firm-level data, the results support the notion that ethical fund underperformance is a result of inherently poor stocks, rather than the selection skills of the fund manager.

Crisóstomo et al. (2011) provide a study on Brazilian non-financial firms through an analysis of a CSR index based on the relative amounts spent on sustainable activities. This index uses data on funds spent on three social corporate actions – ‘relationship with employees’, ‘external social action’, and ‘environmental action’. The study shows that spending on social actions have a strong negative impact on firm value, particularly those of the employee and environmental dimensions. Indeed, these two social initiatives represent the strongest focus on CSR by Brazilian firms, and consequently represent the largest source of value-decreasing influence.

Dianita (2011) hypothesises that companies that participate in earnings management (manipulation) tend to over-invest in CSR activities, as behind the ‘socially responsible image’ the company hopes to be less exposed to thorough investigations by their stakeholders. Moreover, the CSR mechanism can be considered a form of powerful self-defence, to gain support from their stakeholders and thus reduce the damage when their dishonest activities are exposed. Using an accruals model to empirically detect earnings
management, and a CSR index measuring disclosure intensity, the authors indeed find support for this hypothesis. In particular, they find higher levels of earnings management lead to an increase in CSR activities, and consequently a worsening of company financial performance.

In light of the growing concerns of misconduct in the defence industry, including claims of defective pricing, subcontractors’ kickbacks and breaches of compliance, a set of minimum standards known as the Defence Industries Initiative (DII) was drafted in the US. Defence contractors who signed the DII agreed to adopt and implement a set of business ethics governing corporate social responsibility initiatives. Boyle et al. (1997) analyse the stock market reaction to contractors who signed the DII. This analysis finds those contractors experience a significant negative market reaction, in contrast with contractors that did not sign, and also when compared with the wider sample of firms engaged in defence contracting. These results indicate two possible scenarios: DII is a precursor for future sanctions against firms engaged in defence contracting, and/or second, as a penalty for socially responsible practices. Whichever the interpretation, their findings support the view that corporate social activities are largely destructive of future cash flows.

2.3.3 Research that finds a neutral/no relationship (CSR does not matter)

Brine et al. (2006) apply the CSR–CFP investigation to an Australian context, by identifying CSR companies (from the ASX 300) according to whether or not they issued sustainability reports. The authors acknowledge that identifying CSR firms using this method may provide greater indications of a firm’s willingness to report, rather than actual extents of CSR incorporation, but they urge readers not to underestimate this useful indicator of CSP. For instance, sustainability reports often contain information about energy efficiency, water
usage, greenhouse gas emissions, retention policies etc. Their preliminary results show firms that adopt CSR experience an increase in sales and an increase in equity, but a decrease on return on assets. None of their results however are statistically significant.

Garcia-Castro et al. (2010) argue the heterogeneity in previous research regarding the CSP–CFP link is due mostly to the lack of controlling for endogeneity. The authors assert that decisions by company management to engage in social activities (that is, initiatives designed to improve the relationship between the firm and its stakeholders) are endogenous. Applying instrumental variables to control for endogeneity, they find that while a positive effect is present, these effects are diluted once endogeneity is properly accounted for. In fact, the authors suggest previous findings of a positive link are mostly driven by self-selection (such as good management quality, organisational culture, quality of corporate board, decision-making style, etc.), and once endogeneity is considered, results can become non-significant and even negative. Overall, their findings highlight the importance of analysing firm-specific characteristics that increase the likelihood a firm will engage in CSR. Only then can a clearer cause–effect relationship between CSP and CFP be established.

Rennings et al. (2006) analyse the sustainability performance of European firms based on two dimensions: environmental performance and social performance. Analysing the first dimension reveals that high environmental performance has a positive effect on shareholder value, while in contrast high social performance has a negative effect. This rivalry between positive and negative forces means overall sustainability performance (that is, the composite of environmental performance plus social performance) has no statistical significance for average monthly stock returns.
A widely accepted hypothesis is that corporate philanthropy relies on available resources, often referred to as ‘slack resources’. While Seifert et al. (2003) find empirical evidence supporting this premise – high cash holdings are related to high cash donations – the actual level of corporate philanthropy of these firms has a non-significant impact on financial performance. In other words, Wall Street seems to be ‘indifferent’ to firms giving large donations compared with small donations, whether corporate philanthropy is measured as direct cash payouts, or as total contributions received by charities. The authors propose their results point to more important influences on stock performance, and that corporate philanthropy at best can be regarded as a secondary influence.

In an analysis of the UK supermarket industry, Moore (2001) finds a positive relationship between lagged CFP and CSP. However, the relationship between contemporaneous financial performance and CSP is negative. Both results together seem to suggest a cycle of events in which good financial performance leads, to at least in the beginning, to higher social performance, but then through the detraction of doing ‘real business’, poorer financial results occur in the following period. While hypothetically insightful, both results are reported to be insignificant.

McWilliams and Siegel (2000) demonstrate a particular flaw in the previous empirical analyses – the literature’s lack of controlling for research and development, which the authors assert can explain the majority of the heterogeneity in results so far. Subsequently the authors find research and development to be highly correlated with CSP. For instance, many firms that engaged in CSR are also actively pursuing differentiating strategies through investment in research and development. Thus, if studies do not control for research and development (particularly intensity of research and development), this misspecification can create an upward bias to estimates of the CSR effect on financial performance. McWilliams and Siegel
(2000) show once research and development is properly considered in empirical analysis, CSP has a neutral impact on firm profitability.

Balabanis et al. (1998) investigate firms operating in the UK. Despite their use of a comprehensive measure of CSR based on eight dimensions (CSR disclosure, advancement of women, advancement of minorities, philanthropy, environmental actions, donations to political parties, subscription to the economic league, impact to environment), the authors were not able to conclude that CSR has a significant impact on financial performance. In fact, the study finds capital markets are indifferent to firms undertaking CSR activities. Overall, their findings suggest the CSR–CFP link is weak and inconsistent. This conclusion holds despite the authors’ attempts to distinguish economic performance between past, concurrent, and subsequent periods.

2.3.4 Research that finds a curve-linear relationship

While some researchers find a positive relationship between CSP and CFP, others find a negative relationship. It seems that whether the relationship is positive or negative (or neutral) is still far from well established in the literature (Garcia-Castro et al., 2010). Recently, however, research has emerged to suggest that both findings, positive and negative, may be accurate over some range. In other words, the relationship between CSP and CFP may be more complex than simple linear models. In this regard, an optimal level of social performance may exist between levels of resource/social commitment.

Barnett and Salomon (2012) hypothesise that firms that engage in socially responsible activities accrue stakeholder influence capacity (SIC). Once SIC is adequately accumulated, it allows the firm to profit from its social investments. Conversely, firms with low levels of SIC are unable to generate favourable returns on their social activities. The authors find evidence
supporting this underlying quadratic relationship. Specifically, as a corporation’s KLD ratings increase, its financial performance declines at first to reach a low point, but then it begins to experience increasing financial performance. Their findings imply CSR should be viewed as a long-term investment. In the short term, the corporation may experience some financial burden, but in the long term it may reap financial benefits if adequate stakeholder relations are developed.

In contrast to the previous study, Wang et al. (2008) document an inverse U-shape relationship instead. At first, corporate philanthropy can provide positive financial benefits to the firm, however as social contributions increase beyond a certain level, these positive effects will begin to fall. The authors propose their results show that while CSR giving can help secure critical resources controlled by various stakeholders and provide related insurance-like benefits, corporate philanthropy beyond a certain level can begin to apply constraints on stakeholder support. This leads to higher direct costs and agency costs. Moreover, this inverse U-shape relationship between corporate philanthropy and corporate financial performance can become more pronounced (at least on the positive side) under more dynamic environments (as opposed to stable environments), in which corporate philanthropy plays a greater role in gaining support and thus securing critical resources from stakeholders. Firms operating in dynamic environments will therefore experience higher levels of financial performance, despite the same level of commitment to corporate philanthropy exercised by firms in less dynamic environments.

2.4 Summary and conclusion

At the heart of this growing movement lies a fundamental question of credibility – can firms that adhere to corporate social responsibility earn higher profits, or do these activities damage
the bottom line? The key to the credibility of CSR therefore lies in its ability to contribute to profitability, a contribution that must go beyond the expenses required to engage in such activities.

The empirical relationship between CSP and CFP has been investigated extensively. Some studies find a positive effect on financial performance (Kempf and Osthoff, 2007; Galema et al., 2008; Fernandez-Izquierdo and Matallin-Saez, 2008; Gil-Bazo et al., 2010), while others find that while CSR does not necessarily lead to material changes to financial performance, it by the same token does not necessarily entail a sacrifice of financial returns (Bauer et al., 2005; Gregory et al., 1997; Hamilton et al., 1993; Statman, 2000). Yet others find firms engaging in CSR do indeed demonstrate an underperformance trait and that “it can hurt to be good” (Geczy et al., 2005; Renneboog et al., 2008; Brammer et al., 2006).

In a statistical meta-analysis study by Orlitzky et al. (2003), Margolis et al. (2009), and Peloza (2009), an overall positive relationship has been shown to exist – social responsibility does translate to higher financial performance – although reviewers acknowledge its actual contribution in this regard is small.

After more than 40 years of research that has provided conflicting and inconclusive evidence, we ask: what direction should future research take? First is the well-worn path of research refinement, seeking better precision in analysing the link between CSP and CFP (Margolis et al., 2009). Indeed scholars critiquing the relationship between these variables show past studies are imperfect in a variety of ways (see Wood and Jones, 1995; Griffin and Mahon, 1997; Rowley and Berman, 2000; Aguinis and Glavas, 2012). Common among them include ‘stakeholder mismatching’ (Wood and Jones, 1995), neglect of ‘contingency factors’ (for example, Ullmann, 1985), existence of ‘measurement errors’ (e.g Waddock and Graves,
bias from ‘omitted variables’ (Aupperle and Hatfield, 1985; Cochran and Wood, 1984; Ullmann, 1985) or, as McWilliams and Siegel (2000) surmise, an overall ‘flawed empirical analysis’. It is unsurprising then that one reviewer of the literature highlights the futility researchers face in their attempt to find a general relationship between CSR and CFP (Margolis and Walsh, 2003).

Observers only have to note the number of studies investigating this one empirical relationship to appreciate the current disparity in the literature. For instance, reviewers of the literature show that from 1972 to 2007, the CSR–CFP relationship was the subject of over 251 separate investigations (Margolis et al., 2009). Other reviewers note that the strength of the relationship identified between CSP and CFP is reliant on the discipline of the academic researcher (Orlitzky, 2007). This last statement implies a research field that is highly fragmented and subjective (Peloza, 2009).

Of the limitations in the literature so far, we argue one of the most important among them is the inability to measure and validate the ‘CSR factor’. Indeed many social activities and initiatives are difficult to measure, let alone quantify (for example, preventive benefits such as countering bribery). As a consequence, many studies use single-dimensional measures of corporate social performance. For instance, and to name only a few, Ehsan and Kaleem (2012) consider donations and spending related to the Workers Welfare Fund Ordinance; Lev et al.(2010) analyse levels of charitable contributions; Luo and Bhattacharya (2006) employ Fortune America’s Most Admired Corporation Ratings; while Cowen et al. (1987) examine the number of CSR disclosures. In terms of single-dimensional measures of environmental performance, King and Lenox (2001) consider emissions levels recorded by the Toxic Release Inventory (TRI), Potoski and Prakash (2005) analyse voluntary participation in ISO
14001 certification, while Shimshack and Ward (2005) examine self-assessed compliance with environmental regulation.

In fact, in a comprehensive review of the CSR matrices used in the literature, Peloza (2009) identifies 39 unique types, ranging from pollution measures (18 %), environmental health and safety (16 %), third party audits or awards (12 %); the KLD index (9 %); and rankings from *Fortune* magazine (9 %). While these specific measures of social performance are important, they nevertheless provide a too-narrow indicator of CSR, even when used as a measurement of environmental sustainability. Thus, one of the key sources of the heterogeneity in previous findings is the variety of ways in which the CSR factor has been conceptualised, making it difficult to compare CSP performance. Moreover, with such a wide selection of CSP strategies, each with its own expectations and relevance, it is unsurprising to find a diverse range of financial implications. Indeed this is consistent with Margolis et al. (2009) analysis across eight categories of CSR, which finds that different social initiatives have significantly varying impacts on financial performance.

Further, while there are numerous studies that analyse the long-term financial performance of socially responsible firms (for example, see the previously mentioned meta-analysis reviews), this is not an accurate test of how the market evaluates CSR because any long-term performance evaluation may be due to confounding factors (for example, business cycles, competition movements, etc.). Moreover, Clacher and Hagendorff (2012) note the long-term performance of firms classified as ‘socially responsible’ may be in part a function of demand by a subgroup of investors. For instance, pension funds that specifically screen for social criteria and hold their investments unchanged for the long term.
In addition, if the CSR factor is substituting in part or whole for another risk factor, any
evidence that corporate sustainability is priced by capital markets becomes only a reiteration
of the risk and return relationship. In the same way, any evidence that firms that engage in
CSR perform better or worse than their non-CSR counterparts needs to determine whether
performance differences are a result of a social factor, an unknown risk premium, or both
(Lee and Faff, 2009).

Under the free-market view professed by Friedman (1970), the market is arguably the final
arbiter on whether CSR is truly value enhancing (Clacher and Hagendorff, 2012). Therefore
what’s required is a market evaluation of CSR that is separated from any measurable risk
factors and isolates the unique contribution of CSR. Thus, this study focuses on one aspect of
social performance that has received very little attention in the literature, despite its direct
abilities to circumvent common limitations cited above. This is the ‘social index effect’ –
analysing how the underlying price of a firm changes (through an event study) given its
announcement of addition to the FTSE4Good Global Index.

These announcements represent the world’s leading socially responsible firms. Inclusion on
this social index indicates to the market a firm has achieved the highest standards of CSR.
Further, these announcements act as a clear and strong signal concerning the credibility of a
firm’s CSR activities, since firms are evaluated against a comprehensive set of criteria, which
are externally evaluated and quantified by an independent body. Thus, an event study of
market reactions to firms’ inclusion in this social index, if done correctly, can capture a
measure of CSR separated from any measurable risk factors, and one that avoids the
confounding problems of causality.
Therefore our contribution to the literature begins first with the underpinning of being able to isolate a reliable, validated, and significantly ‘clean’ measure of the CSR factor. This is achieved next in our first empirical chapter – analysing the shareholder wealth effects (through an event study) surrounding announcements of firm inclusion in the FTSE4Good Global Index.
Chapter 3: Shareholder wealth effects
3.0 Introduction

Free market enthusiasts believe applying ethical considerations or ‘social consciousness’ to a firm (that is, CSR engagement) is a misallocation of scarce resources, and ultimately deters the firm from its primary goal of profit maximisation. The most influential of these detractors is the Nobel-winning economist Milton Friedman, who expresses his emphatic views against social responsibility in a well-known article titled, ‘The social responsibility of business is to increase its profits’. In this article, Friedman (1970) argues that under the “cloak of social responsibility”, managers exploit CSR as a means to promote their own social, political, or career agendas, eventually imposing costs and reducing the returns to the shareholder. This according to Milton Friedman is tantamount to managers “approaching fraud”. Further, while CSR engagement can be argued to be in the interest of maximising profits, it is not difficult to imagine how a firm can increase its financial returns in contrast with very little concern to environmental, social and governance issues. As one SRI critic surmises “socially conscious investing is a dumb idea, yielding sub-par returns, and screaming with contradictions” (Rothchild, 1996).

However, in light of high profile scandals such as Enron, WorldCom and more recently Lehman Brothers, the viability of simply maximising shareholder returns has been questioned. Instead, investment market participants are seeing a growing movement to a broader strategy, in which all stakeholders are considered important. Donaldson and Preston (1995) in their analysis of stakeholder theory state that there is an intrinsic value in managing stakeholder relationships. Consequently, it is possible for CSR to increase the value of a firm’s stakeholder relationships without disadvantaging the wealth of its shareholders. Studies have indicated effective management of key relationships (such as governments,
suppliers, employees, and the local community), can foster an environment leading to higher financial performance (Freeman, 1984; Donaldson and Preston, 1995), a source of competitive advantage (Hart, 1995; Litz, 1996; Rugman and Verbeke, 1998; McWilliams et al., 2002; Branco and Rodrigues, 2006), and even dictate firm survival (Hart, 1995; Russo and Fouts, 1997; Berman et al., 1999).

As CSR becomes more mainstream in capital markets, the extent to which firms engage in socially responsible activities becomes more scrutinised. From an empirical perspective, scholars have investigated the relationship between CSP and financial performance. A wide range of measures have been used as a proxy for CSP; in fact, in a comprehensive review of the CSR literature, Peloza (2009) identifies 39 unique types, ranging from pollution measures (18% as per proportion of sample studied), environmental health and safety (16%), third party audits or awards (12%); the KLD index (9%); and rankings from Fortune magazine (9%). Given the variety of ways CSR can be conceptualised, comparisons of CSP performance are very difficult. With such a wide selection of CSP strategies, each with its individual motivation, and varying relevance to stakeholders, it is unsurprising to find a diverse range of financial implications. Moreover, this problem is compounded because many of these studies use single-dimensional measures of social performance, despite CSP being a multi-dimensional construct (Carroll, 1979; Waddock and Graves, 1997). Therefore in order to accurately study the impact of CSR, researchers require a proxy based on a variety of CSP measures.

13 For instance, Peloza (2009) in meta-analysis finds 82 per cent of the sample studied use single CSP measures.
Given many CSP actions lack quantitative data, or are difficult to observe (for example, employee morale, pollution emissions), stakeholders and investors attempting to evaluate overall CSP performance may be more inclined to accept CSR reputation assessments from third party institutional endorsement. Kappou and Oikonomou (2012) describes this as acquiring the ‘social seal’, which can be gained through three key methods: presence in a CSR list (Fortune’s ‘Most Admired’ and ‘Best Companies to Work For’ being the most used), social ratings (most widely utilised is the MSCI KLD database), or inclusion in a well-known social index (Dow Jones Sustainability Index, MSCI KLD400, FTSE4Good Index etc.).

Although social seals are important to infer CSR reputation, they are not without their limitations. For instance, inclusion in a reputation list has been shown to be dependent significantly on the strength of the corporation’s financial performance (Brown and Perry, 1994). In addition, the effects of social ratings and their relationship with financial performance are difficult to isolate due to the lack of precise dates or detailed information on the exact cause (for example, changes in ratings are not announced nor are the details of the sources of change). Thus, in this thesis we argue announcements of inclusion (exclusion) from a well-known established social index can send clear and strong signals regarding CSR performance. Moreover, as this social seal is established on multidimensional criteria, that have been evaluated based on the strict and high standards set by these social institutions (Kappou and Oikonomou, 2012; Doh et al., 2010), strong and credible signals regarding changes in market perception can be captured.

Based on this premise, the first stage of our empirical analysis begins by applying an event study methodology surrounding announcements of inclusion to the FTSE4Good Global Index. Before this analysis begins however, it is prudent to first examine the theoretical
background regarding index reconstitution effects. This is then followed by a brief review of the socially responsible indices literature. In the third section we present our key hypotheses underlying the market reaction to social index inclusion. The fourth section examines our data sources and methodology concerning our use of the event study. In the fifth section we present our key results stemming from our empirical analysis, which is then followed by our robustness checks in the sixth section. The chapter ends with a discussion and conclusion.

3.1 Literature review

3.1.1 Theoretical background

According to the efficient market hypothesis (Malkiel and Fama, 1970), changes in index compositions should have no effect on stock prices.\textsuperscript{14} However despite this, numerous studies (in particular those concerning the S&P 500, as we will soon discuss) have shown significant price and volume changes associated with these events. Consequently a number of theories have emerged. The following is a brief review of those theories. Forward note: while the first two hypotheses assume index announcements (inclusion or exclusion) contain no information and therefore cannot affect share prices, the remaining hypotheses in contrast assume these events do carry information, and consequently can fundamentally change the value of the affected stock.

Price pressure (not information based)

The price pressure hypothesis asserts changes in price and volume from index composition events are observed only in the short-term. As announcements of this event do not carry any

\textsuperscript{14} Assuming announcements have no impact to the discounted sum of future expected returns to shareholders.
information, shifts in demand (and thus changes in price and volume) are only temporary. Therefore, despite short-term movements (created by excess demand that eventually abates), long-run demand is inherently horizontal.

Support for the price pressure hypothesis is provided by Harris and Gurel (1986) who find inclusion events in relation to the S&P 500 experience on average significant price increases of 3.13%, only to abate almost fully after two weeks. Similarly, Woolridge and Ghosh (1995) and Arnott and Vincent (1986), find significant price rises were subsequently met with almost equal price declines.

**Downward-sloping demand curve (not information based)**

Studies documenting a positive stock reaction to announcements of inclusion in the S&P 500 index have often been interpreted as evidence of a downward-sloping demand curve. This suggests (unlike in the classical capital asset pricing model world) that investors do not have access to near-perfect substitutes, and therefore any significant price movements can be due to non–information based portfolio decisions. For instance large block trades (often resulting from index buying/selling to minimise tracking errors) can change the prices of the affected stock, as investors require higher compensation (due to a lack of perfect substitutes) to adjust their portfolios (Kraus and Stoll, 1972). Moreover, following from the previous hypothesis, if indeed the demand curve was horizontal, buying/selling from such trades would not be accompanied by any lasting increases or decreases in share prices (Shleifer, 1986). Any excess return surrounding such changes is therefore consistent with a downward-sloping demand curve, in which movements in demand are permanent, as well as any corresponding changes in price and volume.
**Information-cost hypothesis**

The information-cost hypothesis argues index inclusion allows investors to increase their awareness of the firm, and thus reduce the costs related to information searching and information asymmetry. Therefore, price responses due to changes in information asymmetry result in permanent price changes. Moreover, this hypothesis dictates price changes from this initial event will not be lost due to exclusion from the index. Consequently any changes in price from the information-cost hypothesis remain permanent after inclusion (Chen et al., 2005).

**Signaling content**

According to the signalling hypothesis, changes in the composition of the index are interpreted by investors as signals regarding the future value of the firm, as private information held by these index companies are revealed by these events (Wai Kong Cheung, 2011). All else being equal, if announcements of firm inclusion indicate higher future value, upon announcement, the firm will experience a subsequent increase in share price. In line with this hypothesis is evidence by Denis et al. (2003), who find inclusion in the S&P 500 index is consistent with significant increases in earnings-per-share forecasts and improvements in realised earnings. Therefore according to this hypothesis, index reconstitution events are not information-free events, and thus any related price effects should be permanent.

**Liquidity**

The liquidity hypothesis argues index inclusion can provide opportunities for firms to permanently increase their liquidity. Liquidity can increase due to increases in information-
based trading, and greater trading behaviour by market investors (Chordia, 2001; Hegde and McDermott, 2003). This in turn will show in increases in both price and trading volume to reflect this new benefit. One of the first supporters of this hypothesis are Edmister et al. (1994), who find price effects post inclusion do not disappear over time. While Hegde and McDermott (2003) find evidence of a positive relationship between stock price and changes in liquidity, they were unable to ascertain whether this was a consequence of higher investment opportunities or a potentially lower discount rate.

Following the theories presented above, we argue that as announcements of social index inclusion can represent a strong signalling event, which is inherently not information free (that is, entry to the FTSE4Good Index event can represent high credibility in meeting strict CSR criteria), any abnormal price performances observed represent a fundamental revaluation of the firm. Importantly, this proposal is consistent with the conclusions of Jain (1987) and Dhillon and Johnson (1991) that market price movements related to the reconstitution events of the S&P 500 are a consequence of a transference of new information, rather than from price pressures created from stock purchases or sales. Thus, similar to other studies in the social index literature (Kappou and Oikonomou, 2012; Doh et al., 2010; Clacher and Hagendorff, 2012), and to the aforementioned authors, we anticipate announcements of social index inclusion can be attributed and explained by the signalling-content hypothesis.

### 3.1.2 Portfolio performance and social index effect

Nearly one out of every six dollars, or 18 % of all assets under professional management in the US, are dedicated in some way to socially responsible investments (SRIs) (USSIF, 2014) – an investment approach in which environmental, social and governance (ESG) factors are
incorporated in the management of assets. Although SRIs was once only considered for the religious ‘hard-core’ (for example, Quakers and Catholics), investments based on ethical criteria are now a significant part of capital markets. Market investors need to be able to benchmark these performances, which has led to the creation of socially responsible indices.

Recently the literature has focused on analysing the performance credibility of this asset class. Where past studies analysing SRI investment funds (or mutual funds) were jointly testing the performance of the underlying asset and the skills of the fund manager, the analysis of socially responsible indices avoids these investigative problems; particularly the ability to measure social performances net of transaction costs and fees, and/or the confounding effects of managers’ stock-picking skills. Thus an analysis of socially responsible indices can determine more effectively whether SRI equities are underperforming or outperforming their otherwise conventional counterparts. In the following literature review we examine the performance of this asset class divided into two key areas: studies that analyse the ‘portfolio performance’ of socially responsible indices, and studies that specifically investigate the ‘social index effect’ (that is, the announcement effect of reconstitution events).

3.1.3 Studies on the portfolio performance of social indices

Schröder (2007) analyses 29 international social indices using both single and multifactor models. The study finds that social indices on average neither outperform nor underperform their relative benchmarks, although most were noted to carry higher risk on average. These results echo similar findings of investigations concerning one of the oldest established social indices available – the Domini 400 Social Index (DSI) or now renamed the MSCI KLD 400. Sauer (1997) finds that regardless of market proxy selected, the social criteria employed by
the DSI had negligible impact on financial returns. While Statman (2000) conclude in a comparison of the DSI and the S&P 500 that “pooling investing power for something other than making money is no worse at making money than pooling it for money alone” (p. 38). Moreover any outperformances observed by the DSI have been attributed to factors unrelated to social criteria. For instance, outperformance may be due to the economic and sector exposures inherent in the social screening (DiBartolomeo and Kurtz, 1999), or to the higher price volatility and price-to-book ratios in the stocks making up the DSI (Kurtz and diBartolomeo, 1996).

Turning now to the family of the FTSE4Good indices,15 Collison et al. (2008) report that while this set of social indices earn higher returns compared with their base universes (in which they were drawn), higher returns are only obtained by taking on constituents with higher risk. Interestingly, the authors note that when they disaggregated their sample into periods before and after the indices went ‘live’, they found the majority of positive returns were achieved before fund managers were able to trade the index. Once the index went ‘live’, social index returns were on average negative, lower and riskier than those achieved by their relevant benchmark.

López et al. (2007) construct two groups of firms. The first group belonged to the Dow Jones Sustainability Social Index (DSI) and thus were classified as firms that had adopted high sustainability practices. The second group is a control group matched according to similar size and capital structure. Through regression analysis the authors find that high CSP practices have a significant and negative association with financial performance. Further, they

15 The family of the FTSE4Good includes: FTSE4Good UK, FTSE4Good Europe, FTSE4Good US, FGTSE4Good Global, and variations of these indices for example, FTSE4Good UK 50.
considered whether this CSP–CFP relationship endures over time. During the seven years of the study, they find measures of profitability (for example, profit margins, return on assets and return on equity) are only significantly lower in the third year post CSR adoption (that is, from the time the index was first constituted). As there are no revenue differences between both groups during this period, López et al. (2007) suggest performance differences must be attributed to the higher sustained costs of CSR and thus lower observed profitability. Consequently, they surmise the expenses occurred in the pursuit of socially responsible criteria can place firms at an economic disadvantage compared with their less-responsible counterparts.

3.1.4 Studies on the evaluation of social inclusion/exclusion (specifically event studies)

In this section we review the literature investigating the announcement effects of social index reconstitutions. We note the literature in this research field is limited both in number and scope. At the time of writing, to the best of our knowledge, there exist only four published studies and three unpublished studies. The following is a review of those papers.

Cheung (2011) investigates the announcement effect of reconstitution events related to the Dow Jones Sustainability Index (DJSI) based on three measures of stock performances: changes in price (return), risk and liquidity. Analysing cumulative abnormal returns (CARs) when firms announce they are included in the DJSI shows evidence of an anticipation effect. CAR begins rising from negative territory during the few days prior to announcement, but then loses momentum a few days after the announcement. Movements in CAR during this event window are found to be insignificant. Moreover, an analysis 15 days and 60 days after the event reveal that price changes are largely temporary. Nevertheless abnormal returns on
day zero are reported to be significant and negative (although this too was concluded to be largely temporary).

In their second analysis, two proxies of liquidity are examined. First the authors find trading volume for both inclusion and exclusion stocks to significantly decrease in the opening five days post announcement, while in the long term, particularly after the change of constituents is implemented (usually 9–14 days after the announcement date), trading volume is found to be generally higher for both announcement effects. Second, they find bid-to-ask spreads to be lower (an indication of lower transaction cost) for both included and excluded stocks; however the outcome of these spreads are observed to be different in the long run – bid-to-ask spreads for included firms remain lower in the long run, and become wider for excluded firms. This result is consistent with changes in information produced by inclusion or exclusion from a trading index.16 Lastly, idiosyncratic risk for both included and excluded stocks is found to significantly change around the announcement of the event.

Curran and Moran (2007) perform an event study related to announcements of inclusion and exclusion to the FTSE4Good UK index. They hypothesise announcements of inclusion are rewarded in the market place, as this provides an indication of greater abilities to derive benefits (such as reputational gains that can lead to higher profitability) from a superior CSR profile. Equally, they propose a counter-hypothesis that announcements of exclusion are

16 Two forces can cause a reduction of bid-to-ask spreads, with both forces often working at the same time. If announcements contain new information and consequently reduce uncertainty, bid-to-ask spreads are expected to be lower. On the other hand, bid-to-ask spreads can become lower due to increases in trading volume, as these tend to reduce the inventory cost of market makers. Thus while trading volume is lower for included stocks (and thus implying higher bid-to-ask spreads), it seems the dominant effect of reducing uncertainty and adverse-selection in the end lowered the bid-to-ask spread.
received negatively by the markets (for example, ‘reputational slurs’ for being non-members, especially if their competitors are constituents). While their results show a trend towards the expected direction, abnormal returns observed are ultimately found to be statistically insignificant. They interpret the non-significance in their results as investors adjusting the share price and expected impact on cash flows well before the announcement of the event. We note one key limitation in this study is the relatively short span of analysis (that is, collection of announcements) of only two years.

Clacher and Hagendorff (2012) employ an event study methodology centred on UK firms found to be announced for inclusion in the FTSE4Good Index. While the authors find positive market reactions as measured by CARS to announcements of inclusion, the reported results are not significant. As a consequence they are unable to conclusively state that social index inclusion provides any long-term value. Partitioning their sample into high and low quintiles, they find investors react more positively to the event if stocks are characterised by larger size, higher return on equity and greater employee productivity. Last, the authors carry out regression analysis to determine the cross-sectional determinants of CARS. Their results confirm those of their quintile analysis: CARS is significantly and positively related to size and employee productivity, and negatively and significantly related to leverage, with the exception of return on equity, which is found to be insignificant.

Doh et al. (2010) explore the notion that ‘virtuous’ firms are rewarded in the marketplace, however they highlight that such endorsements of socially responsible behaviour are reliant on institutional assessment. Thus focusing their research on institutional theory, the authors perform an event study on the Calvert Social Index by analysing both additions and deletions of US firms. While firms announced for addition showed no significant results, firms that are deleted lose on average more than 1.2 % of their market value on the day and following the
announcement (on the day negative 2 %, but insignificant, and following the event day a loss of 1.1 % and significant). It appears that removal from the index is far more important to investors than the positive endorsements offered by announcements of inclusion. Dividing their sample into portfolios of ‘included’ or ‘excluded’ firms, they find the former portfolio experiences significantly higher operating performance in the period prior to the event compared with their excluded peers. In terms of prediction powers, prior operating performances seem to be a good indicator of future social performance (that is, a prelude to announcement of addition to a social index).

In the next stage of their analysis, the authors employ OLS regression to evaluate the cross-sectional determinants of CARS, based on prior CSR ratings (provided by KLD) and measures of sales growth and firm size (they control variables). They find, as expected, that firms that are deleted from the index had a negative relationship with CARS. Moreover, the intensity of market reaction is found to be tempered by prior CSR ratings. For instance, firms with high CSR reputations are buffered by the downward pressure on stock prices related to announcements of deletion, while firms with poorer CSR reputations experience greater market reaction associated with announcements of inclusion. These results as mentioned earlier suggest a tempering effect – limiting both the positive effects to firms with high prior CSR reputation and mitigating the downside effects of negative announcements of deletion.

Turning now to control variables, they find firms with faster sales growth experience poorer returns when they are excluded, while firms with slower sales growth experience higher returns when they are included. Larger firms are found to experience higher abnormal returns.

Kappou and Oikonomou (2012) propose that the reconstitution events of social indices is not an information-free event, but a process in which valuable information regarding the social performances of firms is revealed. As social performances can have important implications
for firm value (that is, value increasing or value decreasing), announcements of changes to the social index can reveal important changes to the cash flows of these firms. To investigate this hypothesis, they analyse announcements of addition and deletion from two prominent US social indices – the Calvert Social Index and MSCI KLD 400 Index. Their findings using an event study show announcements of addition to both social indices provide non-significant abnormal returns, while announcements of deletion, particularly for the MSCI KLD 400, are negative and significant on the event date. While CARs for the short-term period (windows from –5 to +15 days) provide no viable results for either announcement event, in the long run (six months) the deletion sample of the MSCI KLD 400 experiences highly significant CARs of up to negative 14%. In addition, they find the trading volume for the MSCI KLD 400 Index significantly increases two weeks before the event (possibly evidence of an anticipation effect), and is significant again on the event date – with this effect lasting for almost two weeks.

Lastly, the authors test average differences in earnings per share based on a pre and post analysis of the event. They find firms added to the social index experience higher earnings per share in the post period, while firms deleted from the social index experience lower earnings per share in the post period. However, while these results follow the expected direction, they are not statistically significant. On balance, the MSCI KLD 400 provides more pronounced results compared with the Calvert Social Index. This is attributed to the MSCI KLD 400 Index containing fewer constituents (and therefore signalling effects can be more prominent) and to contain larger firms than the Calvert Social Index (a possible indication that larger firms have a greater market response compared with smaller firms).
Chow et al. (2009) focus on an event study based on additions and deletions from the Domini 400 Index.\footnote{Renamed the MSCI KLD 400 Social Index.} While short-run event studies provide weak evidence of a wealth effect, long-run analysis reveals significantly positive abnormal returns. One firm in particular was found to experience abnormal positive returns of up to 50\% post inclusion. Deletion results however, in both the short-term and long-term analysis, are mixed. The researchers argue this result is unsurprising, given deletions in themselves are not signals that the firm is the worst – but in fact similar to the analogy that “contestants who don’t win a beauty contest are probably not ugly” (Chow et al., 2009).

Becchetti et al. (2009) highlight an important advantage within the clear chronological order in which firms are added or deleted from a social index – the ability to identify causality. This begins first with a corporation’s decision to engage in social activities, the index committee’s assessment of such activities and thus ranking of social performance, the consequential announcement of addition to or deletion from the social index, and then lastly the market reaction to this announcement. According to the authors, this clear course from initial decision to consequential announcement allows research in this field to alleviate the issues of causality. Based on this premise, Becchetti et al. (2009) conduct an event study and find that while announcements of addition to the Domini 400 Social index provide no significant results, firms that were deleted experienced negative CARS of up to 4\%. Abnormal returns are robust to parametric and non-parametric methods, controls for seasonality effects, variations in the length of the event window, and the use of different benchmarks and models to measure expected returns.
3.1.5 Summary

The increasing emergence of sustainable indices including MSCI KLD 400 Social Index, FTSE4Good Index and the DJSI World Index has led a small group of researchers to scrutinise the performance credibility of this asset class. Our literature review indicates socially responsible indices in general neither outperform nor underperform their relative benchmarks, although one study in particular by López et al. (2007) provides a strong alternative case – firms that adopt CSR practices (identified via inclusion on the DJSI) are significantly and economically disadvantaged as a consequence of their socially responsible activities.

However to make definitive conclusions on this basis ignores a major limitation of these studies – that any long-term comparison of performance (which these studies are inherently based on) can be confounded by a range of other factors. For instance, one-year performance comparisons can be confounded by differences in business cycles, competition movements, or to other activities unrelated to CSR. Moreover, the main weakness of studies in this field is that only the average economic performance of all firms in the portfolio is considered, further masking any important influences of CSR.

In this regard, although studying the ‘portfolio’ performance of socially responsible indices has its limitations, an analysis of the reconstitution events of this asset class can alleviate these issues. Moreover, if done correctly (consequently via an event study), we access one overarching advantage of analysis of this asset class – an ability to isolate the relationship between CSR and financial performance, less the confounding effects inherent in any long-term study.
Thus a small group of studies have analysed the ‘social index effect’, producing mostly mixed results. For instance, some studies find that announcements of social index inclusion lead to positive market reactions (Clacher and Hagendorff, 2012; Chow et al., 2009); others find this announcement effect to be insignificant (Curran and Moran, 2007; Doh et al., 2010; Kappou and Oikonomou, 2012); while some find social index inclusion involves an underperformance trait and that “it can hurt to be good” (Wai Kong Cheung, 2011). Table 1 summarises the findings of the ‘social index effect’ literature.

Table 1: Summary of the current ‘social index effect’ literature by effect analysed and result

‘Negative’ or ‘Positive’ indicates the direction of abnormal returns found to be associated with the announcement analysed, either announcement of inclusion or exclusion. In this thesis we define event windows longer than five days from t = 0 as a long-term event study.

<table>
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<tr>
<th>Inclusion</th>
<th>Exclusion</th>
<th>Study</th>
<th>ST/LT</th>
<th>Period</th>
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<td>Non-significant</td>
<td>Negative</td>
<td>Kappou and Oikonomou (2012)</td>
<td>Short-term and long-term</td>
<td>1990–2011¹⁸</td>
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<tr>
<td>Non-significant</td>
<td>Negative</td>
<td>Becchetti et al. (2009)</td>
<td>Short-term</td>
<td>1990–2004</td>
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¹⁸ Two social indices are analysed by this author: MSCI KLD 400 from 1990–2010, and the Calvert Social Index from 2000–2011. In addition, the negative result of exclusion was observed both in the short-term (t = 0) and long-term analyses (0, +125).

¹⁹ The shortest event window in Chow et al. (2009) is 20 days after the event date.
It is clear from the inconsistency of results (particularly those belonging to studies of inclusion effects) that the above studies may have limitations. These include the use of small sample sizes in Doh et al. (2010) and Curran and Moran (2007) (refer to Table 2 for details); deficiencies in removing for confounding effects in Ziegler and Schröder (2010), Becchetti et al. (2009) and Cheung et al. (2010); the absence of a non-parametric test in Curran and Moran (2007) and Kappou and Oikonomou (2012);20 and the pitfalls involved in drawing inferences from long run studies as in Chow et al. (2009) and Kappou and Oikonomou (2012), which as Lyon et al. (1999) points out - even when using the best methods is considered treacherous.

Given that CSR studies can have important implications for corporate decisions and public policies, it is critical that any further research designs are flawless (McWilliams and Siegel, 1997). In this study, we address each of these identified limitations as follows. We use the largest sample size to date (n = 651 firms), remove all confounding effects surrounding our event window, apply the non-parametric test of the Wilcoxon sign rank test, and use an appropriately short event window of (–2, +2).21 Further discussion on the assessment of our event study can be found in section 3.4.

Moreover, studies in this research field focus only on two main markets – the US (Doh et al., 2010; Kappou and Oikonomou, 2012; Chow et al., 2009; Becchetti et al., 2009) and the UK (Curran and Moran, 2007; Clacher and Hagendorff, 2012). Therefore any future research needs to extend analysis to other country contexts and ensure future findings are applicable in

20 McWilliams and Siegel (1997) identifies the lack in non-parametric tests as a critical issue, due to test statistics’ high sensitivity to outliers, which becomes more pronounced the smaller the sample size.

21 McWilliams and Siegel (1997) note event windows “should be long enough to capture the significant effect of the event, but short enough to exclude confounding events” (p. 636).
other regions. Thus we use the FTSE4Good Global Index, a CSP proxy not yet studied in this research field. For instance, past studies have employed the following social indices: the Dow Jones Sustainability index (Wai Kong Cheung, 2011), the FTSE4Good UK Index (Curran and Moran, 2007; Clacher and Hagendorff, 2012), the Calvert Social Index (Doh et al., 2010; Kappou and Oikonomou, 2012), and the MSCI KLD 400 Index (Chow et al., 2009; Becchetti et al., 2009). Table 2 summarises the ‘social index effect’ literature by CSP proxy employed, sample size (N) and other important details as replicated in Table 1 for comparison.
Table 2: Summary of the current ‘social index effect’ literature by CSP proxy

ST denotes short-term event studies and LT denotes long-term event studies. In this thesis we define any event window longer than five days from $t = 0$ as a long-term event study. Period represents the sample period analysed. N denotes sample size. ‘Inclusions’ and ‘Exclusions’ denote announcement effect analysed in each study. That is, announcements of social index inclusion or exclusion, where ‘Mix’ represents both a study of inclusion and exclusion events.

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<thead>
<tr>
<th>CSP social index</th>
<th>Study</th>
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<th>Country</th>
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<td>FTSE4Good Global Index</td>
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<td>GLOBAL</td>
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3.2 Hypothesis development

The literature regarding the CSR–CFP relationship has often quoted two opposing hypotheses: the Friedman (1970) view – whether CSR engagement is a value-destroying exercise; or the stakeholder view – whether CSR engagement is a value-enhancing exercise. Given the mixed results observed in the previous research, this chapter presents both opposing hypotheses to explain market reaction to the reconstitution effects of inclusion on the FTSE4Good Global Index.

3.2.1 Value decreasing

When the costs of tilting the company towards CSR fall short of the benefits that may be received, these firms will be placed at a competitive disadvantage relative to their corporate peers. For example, Abowd (1989) finds increases in employee pay increases firms’ costs, without showing the same increasing benefits to their shareholders. Moreover firms that engage in CSR are routinely more committed to more informative and extensive disclosure (Gelb and Strawser, 2001), a requirement that ultimately translates to greater costs in training, product quality and safety (Waddock and Graves, 1997). Similarly, Barnea and Rubin (2010) argue company managers may be willing to engage in CSR to achieve global reputations and the ‘warm-glow’ effect, despite costs exceeding benefits.

Further, while CSR advocates promote the cost-saving benefits of CSR (for example, increasing product efficiencies), scholars argue that cost-based approaches to assessing initiatives have an inbuilt bias due to their focus on cost savings, rather than actual cost increases. For example, Epstein (1996) cautions that while cost savings tend to be attributed to the CSP investment, cost increases are allocated to ongoing operations or overheads. By
carefully identifying all costs associated with the CSR initiative, the author reveals a figure five times higher than original estimates.

Moreover, as many CSR initiatives are of a long-term nature (for example, improvements in reputation), it is more likely these activities will impact short-term earnings in a negative rather than positive way. In particular, CSR activities often require an immediate reduction in cash flow (such as paying above-market wages), but their benefits to corporate earnings are only usually realised in the longer term (for example, through improved employee morale, lower risk of labour disruptions etc.). Given the high costs, long payback periods, and uncertainty in outcomes (Christie et al., 1995; Zhuang and Synodinos, 1997), corporate resources under this context are more wisely spent on increasing firm efficiency or returned to shareholders as dividends (Barnett, 2007).

Another consideration is that engagement in CSR activities requires the availability of surplus funds (McGuire et al., 1988; Orlitzky et al., 2003), or the allocation of resources that were once set aside for another (potentially more profitable) purpose (López et al., 2007). Therefore announcements of social index inclusion can represent a continued devotion of resources of a “wasteful discretionary act of management” (Brammer and Pavelin, 2006), which may lead to a negative market reaction. Jensen (2010) characterises this scenario further by stating “companies that try to do so either will be eliminated by competitors who choose not to be so civic minded, or will survive only by consuming their economic rents in this manner”.

In summary, Friedman (1970) states CSR is an excess cost borne by shareholders and thus is contrary to the objectives of increasing shareholder wealth.
H1A: There will be a negative market reaction to announcement of a firm’s inclusion in the FTSE4Good Global Index.

3.2.2 Value increasing

In contrast, investors can interpret announcements of social index inclusion to be consistent with Freeman’s (1984) view of managing stakeholder relationships. According to stakeholder theory, positive wealth effects can be sourced if various stakeholders are managed with the overarching strategy of enhancing corporate value. Alternatively, when stakeholders no longer have confidence in a firm’s performance, it loses its critical support structure and customer base (Lee, 2008). This can range from customers Boycotting products, shareholders dumping stocks, and employees becoming more disgruntled and less loyal. Thus CSR activities consistent with the underlying business goals and governance strategy of the firm can (under these considerations) increase firm value (Maxfield, 2008).

Moreover, studies have shown that CSR activities can provide credible signals of higher reputation and brand loyalty (Fombrun, 2005; Fombrun and Shanley, 1990; Freeman et al., 2007), an ability to attract and retain the best managers and employees (Berman et al., 1999; Greening and Turban, 2000; Jones and Murrell, 2001; Turban and Greening, 1997; Wright et al., 1995; Waddock, 2000), higher employee morale and productivity (Solomon, 1985; Brekke and Nyborg, 2008), and/or greater aptitudes in minimising regulatory and environmental liabilities (Hart and Ahuja, 1996; King and Lenox, 2002; Klassen and McLaughlin, 1996; Klassen and Whybark, 1999; Konar and Cohen, 2001; Russo and Fouts, 1997; Porter and van der Linde, 1995). If these value-increasing benefits are perceived to be
associated with CSR, we can expect positive market reactions to announcements of inclusion to the FTSE4Good Global Index.

**H1B: There will be a positive market reaction to announcement of firm inclusion in the FTSE4Good Global Index.**

### 3.3 Data and methodology

#### 3.3.1 Data sources

In this section we provide a description of our major data sources for this study; a comprehensive collection of announcements of inclusion to the FTSE4Good Global Index sourced from FTSE4GOOD, as well as a brief of the various financial and accounting data sourced from Worldscope.

**3.3.1.1 The FTSE4Good Global Index**

Launched in July 2001, FTSE4Good was established with three main objectives: to provide investors a means to identify companies that are leaders in environmental, social and governance performance; to provide investors a tool for benchmarking and tracking the performance of socially responsible investments; to develop and promote greater CSR practices around the world.
To qualify for inclusion, firms must first reside in the FTSE All-World Developed Index. Following this requirement, firms are then screened out if they are involved with tobacco producers, companies in the production of weapons systems or nuclear weapons systems, either producing whole systems, or components, and industry-specific criteria including marketing of breastmilk substitutes and uranium and nuclear power activities.

If firms are not filtered at this stage, they are then required to meet key performance criteria related to environmental, social, and governance issues. These are split into five areas: ‘working towards environmental sustainability’, ‘upholding and supporting universal human rights’, ‘ensuring good supply chain labour standards’, ‘countering bribery’, and ‘mitigating and adapting to climate change’. Over the years the inclusion criteria have gone through continued improvements. For example in 2002 and 2003 the environmental and human and labour rights criteria were strengthened, while new criteria such as bribery and uranium mining were introduced in 2006. More recently, infant formula and breastmilk substitutes criteria were introduced in 2010. As these criteria continue to evolve and become more comprehensive, FTSE4Good challenges companies in the index to continually improve their CSR, or risk losing their listing (FTSE, 2012).

The FTSE4Good policy committee is responsible for: ensuring key policy criteria and methodology are followed correctly; overseeing the consultation process of new criteria; and approving additions to and deletions from the FTSE4Good Index. To assess a firm’s eligibility for the index, a number of different sources are used. These include: scrutiny of annual reports; analysis of company websites; company questionnaires; liaison with corporate

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22 In regards to the FTSE4Good Global Index, UK and Spanish companies are also eligible for selection if they reside in either the FTSE All Share Index, FTSE All Cap (Spanish) Index, or IBEX 35 Index.
managers; examination of publicly available material; and continued correspondence with the associated parties to ensure information held is updated and accurate.

In order to provide a comprehensive assessment of CSP, the FTSE4Good policy committee works in conjunction with Experts in Responsible Investment Solutions (EIRIS) and its network of internal partners, including Corporate Analysis Enhanced Responsibility (CAER, Australia), EthFiFinance (France), Avanzi (Italy), Institut fur Markt-Umwelt-Gesellschaft (IMUG, Germany), and Fundacion Ecologia y Desarrollo (FED, Spain). These external partners cooperate to analyse and report on a firm’s suitability to remain in the index, along with assessments of new additions or deletions to the index, on a semi-annual basis. These details are found in the semi-annual release of the FTSE4Good policy committee review on their website (see http://www.ftse.com/products/index-notices/home/getnotices/?id=FTSE4GOOD).

3.3.1.2 Worldscope

Worldscope (via DataStream) has over 25 years of data collection experience and offers one of the leading coverages of fundamental data (that is, representing 99% of global market capitalisation). This database is widely used by researchers and industry for its content quality, depth of detail, extensive coverage, as well as access to variety of data types including annual and interim/quarterly data, detailed historical financial data, per share data, ratios, pricing and textual information. The wide range of data-type availability allows users to undertake sophisticated analysis across a broad range of financial instruments.
3.3.1.3 Alternative sources of accounting and market price data

As previous studies in the social index literature have mostly been country specific in their sample, the use of commonly used databases such as CRSP and Compustat for US firms, or similar databases for UK firms, will be inappropriate given the global nature of our sample. Therefore, like Clacher and Hagendorff (2012) and Kappou and Oikonomou (2012), we employ Worldscope (via DataStream) for sources of global accounting and market price data.

3.3.2 Sample of interest

The objective of our first empirical chapter is to evaluate market reaction (via an event study) to announcements of firm inclusion in the FTSE4Good Global Index.

We achieve this analysis and arrive at our final sample of interest through the following key steps and considerations:

- Every March and September (with exact dates varying for every year), the FTSE4Good policy committee releases their semi-annual review of approved inclusions and exclusions to the FTSE4Good Global Index. From September 2003 to March 2012, we extract from these reviews data related to the firms found to be announced for social index inclusion. Specifically we collect the name, country, industry classification, and announcement date of each announcement of inclusion. From this initial extraction, we collect 729 firms.

- To form part of our analysis, firms in our initial collection must have identifiable ISIN codes and thus have share price data on Worldscope to cross-reference. Using Worldscope, we cross-reference the name of each firm with its appropriate ISIN codes.
codes. Based on ISIN codes, we collect a history of the share prices for each firm according to the period required. We choose Total Return Index (price adjusted for gross dividends) to accurately capture firm return. Based on the available share prices, this leaves us with a sample of 699 firms, or 699 index inclusions.

- Benchmark indices are appropriately identified from the family of MSCI Country Indices. Therefore each firm is benchmarked according to its country of origin ensuring ‘normal’ returns are controlled for on a country-by-country basis. Moreover, the family of MSCI country indices (as of May 2002) employs a free–float adjusted market capitalisation, a methodology that provides a more accurate reflection of market movements.

- To ensure the focus of our analysis is isolated to the ‘social index effect’, we follow McWilliams and Siegel (1997) and eliminate from our sample firms that may have confounding effects. Confounding effects can lead to erroneous statistical inferences and may include events such as dividend announcements, rumors of, or impending, mergers, new business contracts and products, unexpected earnings announcements, and key changes to the board of directors. Any of these events have the potential to impact share prices during the event window.\(^{23}\) Thus we check for confounding effects during the three days preceding and the three days immediately following the event (at \(t = 0\)). To remove from our sample possible confounding effects, we use Dow Jones Factiva to identify all sources of announcements, articles and publications related to each firm. These announcements are then individually examined to determine possible impact on share prices. Our investigation identifies 48 firms with

\(^{23}\) Moreover, the longer the event window the more difficult it is to control for confounding effects (McWilliams and Siegel, 1997).
confounding effects.\textsuperscript{24} These firms were eliminated, leaving a final sample comprising 651 firms.\textsuperscript{25}

Table 3 provides a sample of confounding effects identified and consequently removed from our study. Figures 1 and 2 illustrate our windows of interest and the period of confounding effects removed in contrast with the event window period. Table 4 divides this sample into inclusions per year as a total number (N) and as a percentage of the total sample. Appendix 2 provides a summary of the data construction breakdown according to each empirical analysis in this thesis.

\textsuperscript{24} For example, we find the following confounding events: Premier Oil announcement of net profit up 188\%, the Laird Group announcement of acquisition of Home Doors limited and Houseproud, and SES global announcement of a new state of the art DVB-RCS platform.

\textsuperscript{25} Note since we only sample firms announced for inclusion to the FTSE4Good Global Index that - it can be argued - our study to be exposed to selection bias; since firms may only engage in CSR to enhance financial performance. This point is alleviated by our sample comprising of firms of different sizes, industries and countries, and thus is largely representative.
**Table 3: Sample of confounding effects identified and decision for removal**

A sample of firms found to have confounding effects, and consequently removed from the analysis. All confounding effects lie in either the three days preceding or following the event at \( t = 0 \). A total of 48 firms were eliminated this way.

<table>
<thead>
<tr>
<th>Firm name</th>
<th>Confounding event</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rockwool International</td>
<td>Announcement of significant increase in profit</td>
<td>Remove</td>
</tr>
<tr>
<td>Alcatel-Lucent</td>
<td>Preliminary talks of merger</td>
<td>Remove</td>
</tr>
<tr>
<td>Spice</td>
<td>Announcement of record full-year profits</td>
<td>Remove</td>
</tr>
<tr>
<td>Auckland International</td>
<td>Acceptance of partial takeover offer</td>
<td>Remove</td>
</tr>
<tr>
<td>Enel</td>
<td>Proposal of new dividend</td>
<td>Remove</td>
</tr>
<tr>
<td>Covidien</td>
<td>Announcement of tender offer for acquisition</td>
<td>Remove</td>
</tr>
<tr>
<td>Google</td>
<td>Approval by European regulators to acquire new company</td>
<td>Remove</td>
</tr>
<tr>
<td>Energias de Portugal</td>
<td>Revision in recommendation from BUY to NEUTRAL</td>
<td>Remove</td>
</tr>
<tr>
<td>Fujitsu</td>
<td>Volatile trading due to disputes regarding former presidents</td>
<td>Remove</td>
</tr>
</tbody>
</table>

Table 4 shows that announcement dates are clustered around days within March and September each year, the periods in which the semi-annual reviews are published online. While the number of inclusions can be argued to have greater concentrations in certain periods of the sample (the highest is 72 additions in March 2004, while the lowest is 11 additions in September 2010), this potential effect of clustering is nevertheless taken into account in our choice of empirical methods.
Table 4: Number of inclusions per year and their respective percentages as a total sample

‘N’ denotes sample size. Percentage is calculated as a proportion of the total sample count.

<table>
<thead>
<tr>
<th>Announcement date</th>
<th>N</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 March 2012</td>
<td>24</td>
<td>3.68</td>
</tr>
<tr>
<td>8 September 2011</td>
<td>19</td>
<td>2.91</td>
</tr>
<tr>
<td>10 March 2011</td>
<td>49</td>
<td>7.52</td>
</tr>
<tr>
<td>9 September 2010</td>
<td>11</td>
<td>1.69</td>
</tr>
<tr>
<td>10 March 2010</td>
<td>20</td>
<td>3.07</td>
</tr>
<tr>
<td>9 September 2009</td>
<td>32</td>
<td>4.91</td>
</tr>
<tr>
<td>11 March 2009</td>
<td>22</td>
<td>3.37</td>
</tr>
<tr>
<td>11 September 2008</td>
<td>33</td>
<td>5.06</td>
</tr>
<tr>
<td>13 March 2008</td>
<td>35</td>
<td>5.21</td>
</tr>
<tr>
<td>12 September 2007</td>
<td>36</td>
<td>5.52</td>
</tr>
<tr>
<td>7 March 2007</td>
<td>15</td>
<td>2.30</td>
</tr>
<tr>
<td>7 September 2006</td>
<td>20</td>
<td>3.07</td>
</tr>
<tr>
<td>8 March 2006</td>
<td>36</td>
<td>5.52</td>
</tr>
<tr>
<td>7 September 2005</td>
<td>36</td>
<td>5.52</td>
</tr>
<tr>
<td>10 March 2005</td>
<td>54</td>
<td>8.28</td>
</tr>
<tr>
<td>10 September 2004</td>
<td>70</td>
<td>10.74</td>
</tr>
<tr>
<td>12 March 2004</td>
<td>72</td>
<td>11.04</td>
</tr>
<tr>
<td>18 September 2004</td>
<td>68</td>
<td>10.43</td>
</tr>
<tr>
<td>Total</td>
<td>651</td>
<td>100</td>
</tr>
</tbody>
</table>
3.3.3 The event-study methodology

The first objective of this thesis is to evaluate shareholder wealth effects (that is, market reaction) to announcements of firm inclusion in the FTSE4Good Global Index. Our methodology for this analysis must be able to isolate (through a precise date) the existence of an information effect. A frequently applied and useful method is the event-study methodology (MacKinlay, 1997). The premise of this method is based on the assumption of market rationality, in which the outcome of any event (assuming price relevancy) will be incorporated and reflected instantly in security prices (Campbell and Andrew, 1997).

Moreover, due to a precise known date (that is, we use the date of the semi-annual release), our event-study methodology can use a short-run analysis, which if done correctly can avoid confounding effects. And while long-term research methods have certainly improved, serious limitations still remain in which inferences from these studies “at a minimum … require extreme caution” (Kothari and Warner, 1997), and indeed using the best methods is still considered “treacherous” (Lyon et al., 1999). This is in contrast to short-run event studies that are comparatively “straightforward and trouble free” (Kothari and Warner, 2006), and can represent the “cleanest evidence we have on efficiency” (Fama, 1991).

Overall, the event study methodology is arguably “the standard method of measuring security price reaction to some announcement or event” (Binder, 1998), and thus along with the evident advantages (as discussed in the next section), we choose this research methodology to address the first empirical objective of this thesis.
3.3.3.1 Estimation of the event study

Standard event-study methodology is used to estimate the stock market reaction to firm inclusion in the FTSE4Good Global Index. Our estimation period to calculate ‘normal’ returns is 249 days preceding the event (from \( t = 0 \)), with an additional 12 days’ buffer to ensure our calculation of normal returns is not contaminated by the event of interest (effectively \(-260 \) to \(-12 \), see Figure 1), for example due to insider trading.

Our event window is defined as two days preceding and following the announcement date (\(-2 \) to \(+2 \)) which is similar to studies such as Faccio et al. (2006). We select a short event window to ensure abnormal returns captured are focused on the impact of the event, while minimising the influence of other noise. Moreover, the event window length we have chosen is particularly suitable for our multi-country sample, in which different time zones can impact the date in which information is reflected in stock prices (Campbell et al., 2010).

![Figure 1: Illustration of the time frame of our event study](image)

In addition, our event window is within the period in which all confounding events (with an additional one day extra on either side) were eliminated to the best of our abilities, giving the study further legitimacy in relation to any abnormal returns detected (See Figure 2).
In order to calculate the abnormal return associated with announcements of inclusion, there first needs to be a basis of relative ‘normal’ or expected returns. Although many complex models have been used in the literature to account for additional factors that may be important in determining this return (Fama and French, 1992; Carhart, 1997), the gains from employing additional explanatory variables beyond the market factor are small (Campbell and Andrew, 1997). Moreover, the coefficients from a simple model (such as the market model) are generally always significant and therefore estimated abnormal returns are highly reliable (Becchetti et al., 2007). This is in contrast to more sophisticated models (for example, multifactor models) that may not possess this same advantage, and rarely improve goodness of fit compared with their simple counterparts (Brown and Warner, 1985; Campbell and Andrew, 1997). Ultimately, the use of short-run event windows (such as the one employed by this study) ensures the final choice of normal return model has little impact on results (MacKinlay, 1997). Thus given these advantages, we employ the market model as our basis of ‘normal returns’.

Abnormal returns are defined as the difference between the observed return of firm $i$ and the expected/normal return predicted by the market model. This difference cannot be explained
by market movements, and therefore is assumed to capture the influence of the event.

Formally:

\[ R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad t = -260 \ldots, -12 \]

and

\[ AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt} \]

Where

- \( AR_{it} \) = abnormal return of firm \( i \) on day \( t \)
- \( R_{it} \) = observed return of firm \( i \) on day \( t \)
- \( \alpha_i \) = market model intercept, estimated by OLS based on the estimation period (-260 to -12)
- \( \beta_i \) = slope, estimated by OLS based on the estimation period (-260 to -12)
- \( R_{mt} \) = observed return on the appropriate MSCI country market index on day \( t \)

As our sample of firms is global, spanning more than 24 countries, we begin by identifying for each firm the country of primary operations, then apply the appropriate country index from the family of MSCI Country Indices. This is to ensure our calculation of ‘normal returns’ is controlled for on a country-by-country basis. By the same token our results are robust to more than one benchmark index, while avoiding the bias that may result from using a single global or other benchmark.
To test the significance of abnormal returns, we follow Patell (1976) and standardise abnormal returns on the event day $E$ by the square root of the estimation period return variance $\hat{\sigma}_i$, and an additional adjustment for forecasting error.

$$SAR_{iE} = \frac{AR_{iE}}{\hat{\sigma}_i \sqrt{\frac{1}{T_i} + \frac{1}{\sum_{m=1}^{T_i} (R_{mt} - \bar{R}_m)^2}}}$$

Where:

$$SAR_{iE} = \text{standardised abnormal return of firm } i \text{ on event day } E$$

$$T_i = \text{number of days in firm } i \text{'s estimation period (249 days)}$$

$$\bar{R}_m = \text{average market return during the estimation period}$$

Cumulative standardised abnormal returns (CSAR) are summed across different event windows as follows: (0), (0, +1), (–1, +1), (–2, +2), and lastly (–5, +5). These windows are calculated in addition to our primary event window of (–2, +2) to ensure enough opportunities in analysis are available to capture any possible changes in return due to the event.

To test the significance of CSAR we use three standard test statistics commonly found in the event study literature: the t-statistics of Patell (1976) and Boehmer et al. (1991), and the z-statistic of the Wilcoxon signed rank test. Each test statistic is chosen based on their econometric advantages.
The Patell (1976) t-statistic accounts for the event period residuals being calculated based on an out-of-sample prediction. In addition, the test-statistic controls for heteroscedasticity that may result from our cross-sectional analysis. These benefits are achieved by normalising the residuals as follows:

\[ t = \frac{\sum_{i=1}^{N} SAR_{it}}{\sqrt{\sum_{i=1}^{N} T_i - 2}} \]

As announcements of inclusion occur semi-annually every March and September each year, the concentration of our events on the cross-section may occur over a small number of days (this is known as event clustering). This will invalidate our assumption that abnormal returns are independently distributed across firms. We therefore employ the t-statistic of Boehmer et al. (1991) which is unaffected by event clustering and allows for event-induced variance. This is achieved by dividing the average event period standardised residual by its contemporaneous cross-sectional standard error, as follows:

\[ \sigma_{SAR_t} = \sqrt{\frac{\sum_{i=1}^{n} (SAR_{it} - \frac{\sum_{i=1}^{n} SAR_{it}}{n})^2}{n (n - 1)}} \]

Yielding the following t-statistic:

\[ t = \frac{\sum_{i=1}^{n} SAR_{it} / n}{\sigma_{SAR_t}} \]
Finally we employ a non-parametric test to ensure our results are robust to the effects of outliers. We use the Wilcoxon signed rank test, which considers that both the magnitude and sign of abnormal returns contain important information. We rank all CAR values from smallest to largest by absolute value. The sign is then re-attached to each rank and summed. The basic premise is that under a random scenario the sum of positive ranks should roughly equal the sum of negative ranks. If this null hypothesis is not rejected, it can be concluded that over a particular event window no significance in either negative or positive abnormal returns exists. Lastly, while the first two t-statistics implicitly assume that residuals follow a normal distribution, the Wilcoxon signed rank can be excused of that assumption.

3.3.3.3 Assessment of the event-study methodology

The use of the event-study methodology, especially in CSP–CFP studies is highly criticised by McWilliams and Siegel (1997). Most notably their criticisms relate to the validity of the identified ‘event’, the use of long-run event windows,26 the lack of non-parametric tests for detecting outliers, the deficiencies in removing for confounding effects, and the absence of explaining sources of abnormal returns. Given the importance of event studies in organisational and public policy decisions, it is vital research designs and implementation of such studies are flawless (McWilliams and Siegel, 1997). Thus we address the aforementioned concerns as follows. First, we identify the event of interest by tracing the precise dates of announcements of inclusion in the FTSE4Good Global Index. Second, our primary event window for analysis of (–2, +2) can be considered

26 Brown and Warner (1980) and Brown and Warner (1985) show the use of long-run event windows can severely reduce the power of the z-statistic.
short and of appropriate length, given McWilliams’ and Siegel’s (1997) requirement that event windows “should be long enough to capture the significant effect of the event, but short enough to exclude confounding events”. Third, to account for outliers and non-normal distributions we use one non-parametric test, as well as an additional two parametric tests. Fourth, we remove all confounding effects (to our best abilities) surrounding our primary event window, with an additional ‘cleaning’ process of one day before and after our prescribed window (see Figure 2). Fifth, we explain abnormal returns by applying cross-sectional analysis using firm-specific variables that have been shown to be important in the CSR literature. This particular concern will be addressed in the next chapter.

Although the event-study methodology has been widely used for measuring the market reaction of a specific event, and consequently can represent the “cleanest evidence we have on efficiency” (Fama, 1991), it has received some important criticisms. Henderson (1990) highlights that “[t]he problems in event studies cannot be solved as such. They can only be dealt with”. In addition, Becchetti et al. (2007) recognise a key limitation of event-study analysis – its sensitivity to market fluctuations or periods of pessimism and optimism. Moreover, the event-study methodology relies on perhaps an unrealistic assumption that investors’ reactions are based on well-informed, fully rational decisions to maximise expected wealth. In addition, McWilliams et al. (1999) argue that CSR studies that employ event studies may be insufficient as they only provide estimates of the short-run impact to shareholders. The authors also note that event studies are sensitive to even the smallest change in research design.

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27 On this basis the assumption of wealth maximisation may not apply for socially responsible investors; decisions to buy or sell the stock are based on the abilities of the stock to comply with CSR standards, rather than the investment’s capacity to maximise profits.
However, we assert that given the advantages of the event-study methodology, and when common issues arising from this method are addressed (as per the previous section), the statistical properties of an event-study methodology are less disputed than other methods of analysis. Indeed, particularly in relation to the CSP–CFP literature, event-study analyses have been noted to be “unique in that they are unusually precise” (Margolis et al., 2009). In the next section we provide our key results stemming from our event-study analysis.

3.4 Results

Table 5: Event study basic summary statistics

<table>
<thead>
<tr>
<th>Abnormal return</th>
<th>Index inclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (5-DAY)</td>
<td>–0.001</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.049</td>
</tr>
<tr>
<td>Min</td>
<td>–0.656</td>
</tr>
<tr>
<td>Max</td>
<td>0.286</td>
</tr>
<tr>
<td>Skewness</td>
<td>–3.296</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>51.126</td>
</tr>
<tr>
<td>N</td>
<td>651</td>
</tr>
</tbody>
</table>

Notes: This table displays the basic summary statistics of the five-day cumulative abnormal return (5-DAY CAR). Summary statistics reported are estimates of mean 5-DAY CAR, standard deviation, minimum, maximum, skewness and kurtosis and sample size N.

Table 5 contains several descriptive statistics of the five-day cumulative abnormal return (CAR) related to the announcement effect. Examining CAR around the event date, it is clear that based on the large value of kurtosis, our sample is non-normal. Consequently, standard

28 Our large kurtosis value is similar to other event studies investigating social index inclusions. See Cheung (2010).
hypothesis testing procedures requiring the assumption of normality can become problematic. Although our sample size is sufficiently large (N = 651), the large kurtosis value nevertheless justifies the use of the Wilcoxon sign rank test. This test statistic is particularly suitable for hypothesis testing with non-normal data.

Table 6: Pairwise correlations of firm characteristics

This table presents pairwise correlations between out studied variables (unbalanced sample). CARs are abnormal returns over the –2, +2 days surrounding announcements of inclusion to the FTSE4GOOD Global Index.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>CARs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td>Size</td>
<td>0.09**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td>Leverage</td>
<td>–0.01</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4)</td>
<td>ROE</td>
<td>–0.03</td>
<td>0.00</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5)</td>
<td>CAPEX</td>
<td>–0.01</td>
<td>0.01</td>
<td>0.13***</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6)</td>
<td>Payout</td>
<td>–0.06</td>
<td>0.00</td>
<td>–0.04</td>
<td>–0.01</td>
<td>–0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7)</td>
<td>Cash</td>
<td>0.02</td>
<td>–0.03</td>
<td>–0.38</td>
<td>0.05</td>
<td>–0.17***</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8)</td>
<td>Growth</td>
<td>–0.01</td>
<td>–0.14***</td>
<td>0.03</td>
<td>0.02</td>
<td>0.05</td>
<td>–0.05</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9)</td>
<td>Asset.Turn.</td>
<td>–0.04</td>
<td>–0.10**</td>
<td>–0.18***</td>
<td>0.03</td>
<td>–0.01</td>
<td>0.03</td>
<td>0.03</td>
<td>–0.09</td>
<td></td>
</tr>
<tr>
<td>(10)</td>
<td>ΔInsti.Own</td>
<td>0.04</td>
<td>0.11*</td>
<td>0.01</td>
<td>0.01</td>
<td>0.00</td>
<td>0.05</td>
<td>–0.05</td>
<td>0.05</td>
<td>–0.02</td>
</tr>
<tr>
<td>(11)</td>
<td>Turnover</td>
<td>0.02</td>
<td>–0.23***</td>
<td>0.19**</td>
<td>0.23***</td>
<td>0.00</td>
<td>0.00</td>
<td>0.12</td>
<td>0.09</td>
<td>0.08</td>
</tr>
</tbody>
</table>

*Significant at the 10% level, **significant at the 5% level, ***significant at the 1% level

From Table 6, pairwise correlations reveal no real concern. The highest correlation figure is experienced between cash holdings (Cash) and leverage (Leverage) with a moderately negative relationship of –0.38, followed by investor turnover (Turnover) and size (Size) of –0.23.
3.4.1 Full sample results

Table 7: Event study results for full sample

This table displays our key results (based on the full sample) of our event study analysis. Event window defines the number of days surrounding the event date at time 0. N represents the number of firms in the sample. The abnormal return for stock \( i \) on day \( t \) (\( AR_{it} \)) is calculated as follows: 

\[
AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt},
\]

where \( R_{it} \) is the observed return of firm \( i \) on day \( t \), \( \alpha_i \) is the market model intercept, \( \beta_i \) is the slope of firm \( i \) based on the estimation period \((-260\,\text{to}\, -12)\), and \( R_{mt} \) is the observed return on the appropriate MSCI country market index on day \( t \). \( AR_{it} \) are standardised following Patell (1976) on the event day \( E \) by the square root of their estimation period return variance \( \sigma^2 \), with additional adjustment for forecasting error. CAR is the cumulative aggregate standardized abnormal return calculated for each corresponding event window. To test the significance of CSAR (cumulative standardized abnormal return), three standard tests of significance were applied: the t-statistics of Patell (1976) and Boehmer et al. (1991), and the z-statistic of the Wilcoxon signed rank test.

<table>
<thead>
<tr>
<th>Event window</th>
<th>N</th>
<th>CAR</th>
<th>CSAR</th>
<th>Patell t-stat</th>
<th>Boehmer t-stat</th>
<th>Wilcoxon z-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>651</td>
<td>-0.038 %</td>
<td>-14.769</td>
<td>-0.579</td>
<td>-0.642</td>
<td>-1.747*</td>
</tr>
<tr>
<td>(0, +1)</td>
<td>651</td>
<td>-0.044 %</td>
<td>-51.300</td>
<td>-1.422</td>
<td>-1.144</td>
<td>-1.116</td>
</tr>
<tr>
<td>(–1, +1)</td>
<td>651</td>
<td>-0.018 %</td>
<td>-28.583</td>
<td>-0.647</td>
<td>-0.550</td>
<td>-0.680</td>
</tr>
<tr>
<td>(–2, +2)</td>
<td>651</td>
<td>-0.242 %</td>
<td>-135.356</td>
<td>-2.372**</td>
<td>-1.912*</td>
<td>-2.091**</td>
</tr>
<tr>
<td>(–5, +5)</td>
<td>651</td>
<td>-0.026 %</td>
<td>-49.123</td>
<td>-0.580</td>
<td>-0.516</td>
<td>-0.698</td>
</tr>
</tbody>
</table>

*Significant at the 10% level, **significant at the 5% level, ***significant at the 1% level

Table 7 displays the abnormal returns related to the market reaction to announcements of inclusion to the FTSE4GOOD Global Index. Standardised abnormal returns are calculated for each day of the event window, spanning \((0), (0, +1), (–1, +1), (–2, +2), \) and \((–5, +5)\), with day 0 as the announcement date. The change day (that is, the day of implementation of announcements) varies in our sample from 8 to 12 days after the announcement date. It is assumed that any effect from the initial announcement has already been reflected in prices.
well before this date, and thus the period surrounding the change date is not included in our analysis.

Over all various event windows, abnormal returns are consistently negative surrounding the days of announcement of CSR inclusion. However nearly all event windows, with the exception of the (–2, +2) are found to be insignificant. According to the latter window, firms that are announced for social index inclusion lose about 0.242 % (median -0.426%) of their market value on the 2 days preceding and following the announcement date. The change in market value is similar in magnitude to other studies that investigate social index constituent announcement effects, with CAR figures ranging from -0.3 % to 0.6 % (see for instance, Wai Kong Cheung, 2011; Doh et al., 2010; and Clacher and Hagendorff, 2012). In relation to our study, this lost in market value represents about USD $18.8 million dollars on average per firm. Congruently our results are robust for heteroskedasticity (confirmed by the Patell t-stat), clustering and event-induced variance (confirmed by the Boehmer t-stat), and the effects of outliers (confirmed by the Wilcoxon sign rank test). Thus according to the (–2, +2) window, our results indicate significant negative abnormal returns to announcements of FTSE4Good Global Index inclusion both in direction and economic significance.

Collectively this chapter provides results supporting the Friedman (1970) hypothesis, that CSR is an excess cost borne by shareholders and thus contrary to the objectives of maximising shareholder wealth. Indeed the cost of CSR engagement can be significant, with a ‘full-fledged’ CSR program costing as much as 2 % of total revenue (Economist Intelligence Unit, 2005). This is consistent with greater CSR costs related to initiatives that seemingly invoke greater cost increases than cost decreases (Epstein, 1996); and the wilful act of management in their pursuit of the ‘warm-glow’ effect. Moreover, as many CSR initiatives are of a long-term nature (for example, improvements in reputation) it is more
likely these activities will impact short-term earnings in a negative rather than positive way. Given the high cost and long payback periods, CSR resources from a social perspective are more wisely spent on increasing firm efficiency or returned to shareholders as dividends (McWilliams and Siegel, 2001). Thus, announcements of social index inclusion represents a continued devotion of resources of a “wasteful discretionary act of management” (Brammer and Pavelin, 2006), which unsurprisingly has led to a negative market reaction.

3.4.2 Sub-results – differences between the US, UK and Japan

In the following section, we present our event study partitioned into three countries: the US, the UK and Japan. These three countries in sum represent almost 75 % of our whole sample (US = 15.5 %, UK = 25.5 %, Japan = 33.2 %). Due to the significant proportions of these countries, we examine the US, UK and Japan samples individually to observe possible differences due to country effects.

Tables 8 and 9 display the results of our event study analysis divided into the US and UK firms respectively. Both the US and UK market show, over various events windows, consistently negative market reactions to social index inclusion. According to the (-2, +2) window, firms in the US and UK lose about -0.366 % and 0.341 % of their market value, which represents approximately a loss in dollar terms of USD $55.429 million and USD $6.15 million on average per firm respectively.

29 The average market value for US firms in our sample is $15141.23 million dollars.
Table 8: Event study result for US sample

This table presents event study results partitioned to only US firms. N represents the number of firms in the sample. CAR is the cumulative aggregate standardized abnormal return calculated for each corresponding event window. To test the significance of CSAR (cumulative standardized abnormal return), three standard tests of significance are applied: the t-statistics of Patell (1976) and Boehmer et al. (1991), and the z-statistic of the Wilcoxon signed-rank test.

<table>
<thead>
<tr>
<th>Event window</th>
<th>N</th>
<th>CAR</th>
<th>CSAR</th>
<th>Patell t-stat</th>
<th>Boehmer t-stat</th>
<th>Wilcoxon z-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>101</td>
<td>-0.340 %</td>
<td>-21.132</td>
<td>-2.103**</td>
<td>-2.366**</td>
<td>-2.363**</td>
</tr>
<tr>
<td>(0, +1)</td>
<td>101</td>
<td>-0.307 %</td>
<td>-28.647</td>
<td>-2.016**</td>
<td>-2.522**</td>
<td>-2.363**</td>
</tr>
<tr>
<td>(–1, +1)</td>
<td>101</td>
<td>-0.430 %</td>
<td>-43.075</td>
<td>-2.475**</td>
<td>-2.700***</td>
<td>-2.363**</td>
</tr>
<tr>
<td>(–2, +2)</td>
<td>101</td>
<td>-0.366 %</td>
<td>-53.829</td>
<td>-2.395**</td>
<td>-3.013***</td>
<td>-2.444**</td>
</tr>
<tr>
<td>(–5, +5)</td>
<td>101</td>
<td>-0.144 %</td>
<td>-1.461</td>
<td>-0.044</td>
<td>-0.048</td>
<td>-0.534</td>
</tr>
</tbody>
</table>

*Significant at the 10% level, **significant at the 5% level, ***significant at the 1% level

Moreover in comparison with the full sample, our country-specific results are more pronounced in relation to the announcement effect. In particular, higher t-statistics are observed (for example, more incidences of 5 % than 10 % levels of significance), occurring over shorter event windows compared with the full sample results. In the US especially, significant and negative abnormal returns are observed in the (0), (0, +1), (–1, +1), and (–2, +2) windows. By comparison, the full sample shows only one consistent and significant event window on the (–2, +2) period.
Table 9: Event study results for UK sample

This table presents event study results partitioned to only UK firms. N represents the number of firms in the sample. CAR is the cumulative aggregate standardized abnormal return calculated for each corresponding event window. To test the significance of CSAR (cumulative standardized abnormal return), three standard tests of significance are applied: the t-statistics of Patell (1976) and Boehmer et al. (1991), and the z-statistic of the Wilcoxon signed-rank test.

<table>
<thead>
<tr>
<th>Event window</th>
<th>N</th>
<th>CAR</th>
<th>CSAR</th>
<th>Patell t-stat</th>
<th>Boehmer t-stat</th>
<th>Wilcoxon z-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>166</td>
<td>-0.130</td>
<td>-9.699</td>
<td>-0.685</td>
<td>-0.819</td>
<td>-1.288</td>
</tr>
<tr>
<td>(0, +1)</td>
<td>166</td>
<td>-0.202</td>
<td>-49.310</td>
<td>-2.666***</td>
<td>-1.362</td>
<td>-1.359</td>
</tr>
<tr>
<td>(–1, +1)</td>
<td>166</td>
<td>-0.043</td>
<td>-40.142</td>
<td>-1.736*</td>
<td>-1.007</td>
<td>-1.237</td>
</tr>
<tr>
<td>(–2, +2)</td>
<td>166</td>
<td>-0.341</td>
<td>-92.100</td>
<td>-3.136***</td>
<td>-1.672*</td>
<td>-1.685*</td>
</tr>
<tr>
<td>(–5, +5)</td>
<td>166</td>
<td>-0.725</td>
<td>-141.977</td>
<td>-3.332***</td>
<td>-2.362**</td>
<td>-2.386**</td>
</tr>
</tbody>
</table>

*Significant at the 10% level, **significant at the 5% level, ***significant at the 1% level

Interestingly, the results of the US and UK firms are in contrast to their Japanese counterparts. From Table 10, we report that Japanese firms experience significant and positive abnormal returns on announcements of social index inclusion. According to the (-2, +2) window, firms in Japan gain about 0.088% of their market value, which represents approximately a gain of USD $5.5 million dollars on average per firm. Without further analysis we can only hypothesise this is due to the more socially favorable culture of Japanese firms.\(^{30}\)

\(^{30}\) For example, the economic system in Japan is traditionally founded on relational trading between firms and long-term relationships established with employees.
Table 10: Event study results for Japanese sample

This table presents event study results partitioned to only Japanese firms. \( N \) represents the number of firms in the sample. \( CAR \) is the cumulative aggregate standardized abnormal return calculated for each corresponding event window. To test the significance of \( CSAR \) (cumulative standardized abnormal return), three standard tests of significance were applied: the \( t \)-statistics of Patell (1976) and Boehmer et al. (1991), and the \( z \)-statistic of the Wilcoxon signed rank test.

<table>
<thead>
<tr>
<th>Event window</th>
<th>( N )</th>
<th>( CAR )</th>
<th>( CSAR )</th>
<th>Patell ( t )-stat</th>
<th>Boehmer ( t )-stat</th>
<th>Wilcoxon ( z )-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>216</td>
<td>0.129 %</td>
<td>14.538</td>
<td>0.989</td>
<td>1.063</td>
<td>-0.108</td>
</tr>
<tr>
<td>(0, +1)</td>
<td>216</td>
<td>0.289 %</td>
<td>32.543</td>
<td>1.566</td>
<td>1.759 (^*)</td>
<td>1.087</td>
</tr>
<tr>
<td>(–1, +1)</td>
<td>216</td>
<td>0.365 %</td>
<td>46.903</td>
<td>1.843 (^*)</td>
<td>2.075 (^**)</td>
<td>1.364</td>
</tr>
<tr>
<td>(–2, +2)</td>
<td>216</td>
<td>0.088 %</td>
<td>11.653</td>
<td>0.355</td>
<td>0.370</td>
<td>-0.097</td>
</tr>
<tr>
<td>(–5, +5)</td>
<td>216</td>
<td>0.406 %</td>
<td>51.135</td>
<td>1.049</td>
<td>1.022</td>
<td>0.745</td>
</tr>
</tbody>
</table>

\(^*\) Significant at the 10% level, \(^**\) significant at the 5% level, \(^***\) significant at the 1% level

3.5 Robustness

In the following section we provide additional robustness to our event study results.

3.5.1 Liquidity

As announcements of social index inclusion can affect stock performances in a number of different ways (in addition to evaluating price effects or market reaction), we employ a liquidity measure to provide further robustness on the observed performance effects related to CSR inclusion.

Following Harris and Gurel (1986) and similarly to Wai Kong Cheung (2011), we measure abnormal trading volume \( AV_{it} \) adjusted for market-wide movements as follows:
Where $V_{it}$ and $V_{mt}$ are the trading volumes of firm $i$ and of the market portfolio (proxied by the MSCI country index for each firm) respectively at time $t$, while $V_i$ and $V_m$ are the average trading volumes of firm $i$ and the market portfolio in the eight weeks prior to the end of the estimation period. The ratio and consequent product of the aforementioned volume measures generates $AV_{it}$, a standardised trading volume ratio of firm $i$, adjusted for market-wide movements in trading volume. This ratio is relatively simple to interpret: if there are no changes in trading volume at time $t$ for firm $i$ relative to the eight weeks prior to the event, $AV$ is expected to have a value of one.

We measure abnormal trading, adjusted for market-wide movements on day zero and day one (day one is the first complete day of trading) over 2003 and 2012. Average $AV$ for these periods is reported to be 1.16 and 1.33 respectively. Moreover, in the first five days of trading (days zero to four), average trading volume over this event window is 1.22. All figures reported in this section are statistically different to one, at the 1% level. In summary, the results of this section confirm the price effects reported earlier. Announcement effects of social index inclusion correspond with both a significant movement in prices (via an event study) and a significantly higher abnormal trading volume (via $AV$).

\[
AV_{it} = \frac{V_{it}}{V_{mt}} \times \frac{V_m}{V_i}
\]

---

31 The sum of the trading volume in the first five days is 6.14. Dividing this number by five is the estimate of the daily trading volume in the first five days of trading.
3.5.2 Varying the estimation window

We vary the estimation period from (–260, –12) to a shorter (–200, –12) window. The results of this event study are reported in Table 11.

Table 11: Event study results based on the (–200, –12) estimation window.

N represents the number of firms in the sample. CAR is the cumulative aggregate standardized abnormal return calculated for each corresponding event window. To test the significance of CSAR (cumulative standardized abnormal return), three standard tests of significance are applied: the t-statistics of Patell (1976) and Boehmer et al. (1991), and the z-statistic of the Wilcoxon signed-rank test.

<table>
<thead>
<tr>
<th>Event window</th>
<th>N</th>
<th>CAR</th>
<th>CSAR</th>
<th>Patell t-statistic</th>
<th>Boehmer t-statistic</th>
<th>Wilcoxon z-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>651</td>
<td>-0.034 %</td>
<td>-13.866</td>
<td>-0.543</td>
<td>-0.604</td>
<td>-1.708 *</td>
</tr>
<tr>
<td>(0, +1)</td>
<td>651</td>
<td>-0.046 %</td>
<td>-52.048</td>
<td>-1.442</td>
<td>-1.159</td>
<td>-1.070</td>
</tr>
<tr>
<td>(–1, +1)</td>
<td>651</td>
<td>0.074 %</td>
<td>-26.901</td>
<td>-0.609</td>
<td>-0.515</td>
<td>-0.507</td>
</tr>
<tr>
<td>(–2, +2)</td>
<td>651</td>
<td>-0.186 %</td>
<td>-133.477</td>
<td>-2.340 **</td>
<td>-1.878 *</td>
<td>-1.888 *</td>
</tr>
<tr>
<td>(–5, +5)</td>
<td>651</td>
<td>0.024 %</td>
<td>-48.220</td>
<td>-0.570</td>
<td>-0.507</td>
<td>-0.610</td>
</tr>
</tbody>
</table>

*Significant at the 10% level, **significant at the 5% level, ***significant at the 1% level

Although we use a shorter estimation window, our results remain overall unchanged; the Patell t-test, Boehmer t-test and the Wilcoxon sign rank test remain at similar levels of significance, abiet lower for the latter two test statistics. Nevertheless overall, our conclusion remains the same – the event window of (–2, +2) continues to exhibit significant and negative abnormal returns.
3.6 Discussion and conclusion

In this chapter we apply standard event-study methodology to announcements of social index inclusion in the FTSE4Good Global Index. Our analysis finds results supporting the Friedman (1970) hypothesis: CSR is an excess cost borne by shareholders and thus contrary to the objectives of maximising shareholder wealth. Examining country-specific results reveals distinct differences in market reaction. The US and UK experience negative abnormal returns, while interestingly firms in Japan experienced positive abnormal returns.\(^{32}\) Lastly in robustness testing, we find trading volume significantly increases immediately after announcements of social index inclusion (therefore confirming the price effects of our event study), while varying the estimation window does not significantly alter our results.

Overall, our empirical findings are similar to Cheung (2011), but they contradict a number of other studies in this research field (such as Martin Curran and Moran, 2007; Becchetti et al., 2009; Chow et al., 2009; Clacher and Hagendorff, 2012). It appears our research is only part of the same contradictory story observed so far. Indeed while meta-analysis reviews of the research literature note the CSP–CFP relationship is small, but positive “probably; it depends” (Peloza, 2009); the exact relationship between these variables is still very much far from well established (Garcia-Castro et al., 2010). When we examine specifically the social index literature, this same disparity in findings is found. For instance, some studies find social index inclusion brings positive rewards (Clacher and Hagendorff, 2012; Chow et al., 2009),

\(^{32}\) While we do not formally explore the hypotheses regarding our country specific results, an obvious avenue for future research would be an investigation of the aforementioned path. Future research can employ country specific variables concerning governance and culture to name a few.
while others find a non-significant relationship instead (Curran and Moran, 2007; Doh et al., 2010; Kappou and Oikonomou, 2012).

A large part of this inconsistency can be attributed to differences in previous methodologies, sample sizes, datasets, as well as definitions or proxies of CSP. For instance, we are the first in the literature (to the best of our knowledge) to analyse market reactions to announcements of social index inclusion to the FTSE4Good Global Index. In addition, as we access a sample of firms on a global scale, our study is the first (to the best of our knowledge) to provide robust results at the worldwide level. Previous research in this field has been isolated to the US (Doh et al., 2010; Kappou and Oikonomou, 2012; Chow et al., 2009; Becchetti et al., 2009) or UK only (Curran and Moran, 2007; Clacher and Hagendorff, 2012).

Moreover, our event study differs from previous attempts in the strength of our implementation; for example, we use the largest sample size to date (651 firms versus 356 firms in Clacher and Hagendorff, 2012), apply non-parametric and parametric tests, remove firms for confounding effects, and employ short-run event windows. In combination, these differences in sample, method and strength of implementation can be expected to provide contrasting differences in results.

Nevertheless, our study appears to support the main criticism of research based on event study analysis: that findings from this method are sensitive to even the slightest change in research design (McWilliams et al., 1999). However, given the vast amount of studies now integral to financial economics – especially those that use event study (Kothari and Warner, 2006) – the advantages and current standing of this method cannot be overlooked. In particular, short-run event studies are relatively “straightforward and trouble free” (Kothari and Warner, 2006), and can represent the “cleanest evidence we have on efficiency” (Fama,
Moreover, while the event study has evolved over time, there seems to be relatively little controversy about its statistical properties (Kothari and Warner, 2006), and thus this method may arguably become ‘the standard’ in analysing asset price reactions to events (Binder, 1998).

Finally our results in this chapter provide evidence that announcements of social index inclusion cannot be considered as information-free events, but in fact contain critical information regarding the financial performance consequences of CSR engagement. In relation to this chapter, we find market reactions to announcements of inclusion in the FTSE4Good Global Index provide significant signaling evidence. Thus our results are consistent with the signaling hypothesis, and similar to findings by Klassen and McLaughlin (1996), who find environmental awards generate significant market reaction, Jones and Murrell (2001), who find significant abnormal returns to inclusion to the Working Mothers list of ‘most family-friendly’ companies, and Doh et al. (2010), who find investors are influenced to a significant degree by announcements of exclusion from the Calvert Social Index.

In our next chapter, we argue one of the most significant limitations of the current social index literature is that most previous studies only analyse abnormal returns from a market reaction perspective. Consequently, these studies have not considered other aspects of

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33 With the exception of Clacher and Hagendorff (2012) and to a lesser degree Doh et al. (2010). Our study however uses a considerably larger sample size (n = 356 in Clacher and Hagendorff [2012] and n = 56 in Doh et al. [2010]), a more comprehensive set of explanatory variables. For instance, Doh et al. (2010) examine essentially only one variable, variations in a CSR dummy along with a set of control variable), and provide results robust to a global scale. Clacher and Hagendorff (2012) focus only on the UK, while Doh et al. (2010) focuses on the US.
trading activity or firm-specific performances, and thus have lacked any substantial ability to explain why these abnormal returns occur, how they impact the related finance theories, and the implication of these results, if any, for practitioners. By examining firm-specific measures of financial constraints, along with measures of institutional ownership, our next empirical chapter attempts to uncover further evidence to explain the abnormal returns observed in this chapter. We achieve this objective via cross-sectional analysis of the five-day CAR in the following chapter.

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34 Clacher (2012) employs size, ROE, Leverage, PDCT (EBIT/number of employees), and VISIBLE – a measure of the number of times the firm appears in press. Doh (2010) analyses how prior ESG ratings affect market reaction to these announcements. The study also controls for firm size and sales growth.
Chapter 4: Determinants of shareholder wealth effects
4.0 Introduction

Is CSR engagement a value-enhancing activity? Certainly based on meta-analysis reviews of the literature between CSP and CFP, an overall positive relationship is said to exist (Orlitzky et al., 2003; Margolis et al., 2009; Peloza, 2009), “probably; it depends” (Peloza, 2009). For instance, while some studies find a positive effect on financial performance (Kempf and Osthoff, 2007; Galema et al., 2008; Fernandez-Izquierdo and Matallin-Saez, 2008; Gil-Bazo et al., 2010), others find insignificant differences instead (Bauer et al., 2005; Gregory et al., 1997; Hamilton et al., 1993; Statman, 2000), while some find CSR involves an underperformance trait and that “it can hurt to be good” (Geczy et al., 2005; Renneboog et al., 2008; Brammer et al., 2006).

When we examine the specific literature regarding the ‘social index effect’, that is, studies investigating the reconstitution effects of social index inclusion/exclusion, we note that the same disparity – if not more – is observed. This inconsistency is highlighted further by only a handful of studies that investigate the announcement effect of social index inclusion, but each subsequently reveal distinct differences in market reaction; for instance studies have found a positive market reaction (Clacher and Hagendorff, 2012; Chow et al., 2009), a negative market reaction (Wai Kong Cheung, 2011), or insignificant differences (Curran and Moran, 2007; Doh et al., 2010; Kappou and Oikonomou, 2012).

Further, while some studies conclude a positive relationship exists, the direction of causality remains unclear. Are firms that are more financially empowered able to engage in higher CSP (a slack resource theory), or are higher financial performances attained by managing key stakeholder relationships (a stakeholder theory)? Clearly the emphasis of the literature so far has been to investigate how socially responsible activities affect financial performance – and
not the other way around. For instance, only 37% of effects studied used CSP measures that preceded measures of CFP, a figure surprisingly low if the goal is to establish a causal link (Margolis et al., 2009). Moreover they criticise the literature for ignoring factors other than CFP when investigating the consequences of CSR engagement.

This lack of depth is especially pronounced in the ‘social index effect’ literature. Since most of these studies only analyse abnormal returns from a market reaction perspective, and do not consider other aspects of trading activity or firm-specific performances, the literature has lacked any substantial ability to explain why these abnormal returns occur, how they impact the related finance theories, and the implication of these results if any to practitioners. Moreover, Peloza notes in his review of the literature:

This situation leaves the ‘believers’ advocating for CSP based on broad studies that do not address firm-specific issues, and the ‘skeptics’ discounting CSP because the research findings are irrelevant (2009, p. 1532).

Following this line of criticism, we explain sources of abnormal returns using firm-specific characteristics that may not necessarily relate directly to sustainable activities, but may reveal in finer detail why the market reacts in such a way. Such variables for example can analyse the slack resource theory, which suggest the availability of excess funds provides the opportunity for firms to invest in environmental and social activities (Waddock and Graves, 1997). Indeed scholars have argued that firms with stronger financial performance have less

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35 With the exception of Clacher and Hagendorff (2012) and to a lesser degree Doh et al. (2010). Our study however uses a considerably larger sample size (n = 356 in Clacher and Hagendorff [2012] and n = 56 in Doh et al. [2010]), a more comprehensive set of explanatory variables. For instance, Doh et al. (2010) examine only two variables, and are able to provide results robust to a global scale. Clacher and Hagendorff (2012) focus on the UK, while Doh et al. (2010) study focus on the US).
difficulties engaging in CSR, and thus inevitably achieve higher CSP (Margolis and Walsh, 2001; Orlitzky et al., 2003).

Moreover while our previous results (Chapter 3) support the hypothesis that CSR is value destroying, this conclusion does not negate the possibility that market reaction to CSR is dependent on the firm’s prior financial performance. Further, while current studies have investigated the effects of slack resources, these have been limited to broad financial performance measures (such as return on equity, return on assets, and sales) as proxy for slack. As a consequence they do not capture the varying discretionary nature of slack, as highlighted in the wider literature investigating the role of this effect on organisational outcomes (see for example, George, 2005).

Therefore as a first prudent step, we use the following measures of financial constraint: capital expenditure (\(CAPEX\)), dividend payout (\(Payout\)), and cash holdings (\(Cash\)). Each variable is important to the capital structure of the firm, and thus can represent significant financing and managerial decisions (see Myers, 2001). For instance, both CAPEX and \(Payout\) often represent large outflows of internal resources, and consequently can severely restrict a firm’s ability to make additional investment choices, for example in CSR.

From the perspective of the CSR literature, these variables have had very limited use. While CAPEX (for example, Cai et al., 2012), Cash (for example, Arora and Dharwadkar, 2011), and Payout (for example, Rakotomavo, 2012) have been employed before, the studies (as per the parentheses) using these variables have all been in the context of a long-term analyses; either evaluating CSR impact on long-term financial performance indicators or evaluating long term CSP proxies that lack precise dates – commonly KLD ratings. For instance, Cai et al. (2012) analyse the explanatory effects on firm value (Tobin Q) on CAPEX and a proxy for
CSR commitment (KLD ratings); Arora and Dharwadkar (2011) explains CSR (KLD ratings) using organisational slack as captured by cash and accounts receivables; while Rakotomavo (2012) explains how CSR investment (again proxy by KLD ratings) can be impacted by the firm’s level of contemporaneous dividend income. While these studies in summary essentially analyse the relationship between CSR and measures of financial constraints, since *all dependent variables are inherently long-term constructs* (for example, KLD ratings lack precise dates to pinpoint time of impact, while firm value proxies - for instance, Tobin Q in Cai et al. 2012 - are based on an aggregate one-year measure), any conclusions reached from such analysis can be confounded by a range of other factors unrelated to CSR.

In this chapter we address this limitation via a short-term study, that is, by analysing the determinants of five-day CAR (from our earlier event study), and which we argue is a *short term* construct that (to the best of our knowledge) has been removed of all confounding effects. Consequently by isolating a more reliable, validated and ‘cleaner’ measure of the CSR factor, variables such as *CAPEX, Cash and Payout* can reveal important details of the relationship between slack resources and CSR not yet clearly examined.

In addition, this chapter also examines the relationship between institutional ownership and the announcement effect of social index inclusion. The role of institutional investors is especially marked given their growth and prominence in the capital markets of today.36 Thus if corporate managers want their stock to remain attractive to institutional shareholders, they must take into consideration the concerns of their institutional owners.

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36 For example, in 2009 if we consider only the largest 1000 firms in the United States, institutional investors represent an ownership of about 73 per cent in outstanding equity - (Tonello and Rabimov, 2010).
When we examine the literature investigating the relationship between institutional ownership and CSP we note mixed results. For instance, while some find institutional ownership is lower in firms engaging in CSR practices (Coffey and Fryxell, 1991; Barnea and Rubin, 2010), others find insignificant effects instead (Graves and Waddock, 1994; Mahoney and Roberts, 2007). We argue a major source of inconsistency in results is the literature’s assumption that all institutional investors are homogenous in their investment decisions. In particular, we highlight that an important heterogeneous factor is the investment horizon of the institutional investor, which according to myopic institutional theory tends to be short-sighted (Hansen and Hill, 1991). Further, Barnett (2007) emphasises the time required, arguing only firms with a genuine commitment to CSR are likely to realise the full long-term benefits of such an investment. Consequently there may be incompatibilities between an institutional owner’s time horizon and the time needed to fully realise the financial benefits of investment in this area (Graves and Waddock, 1994).

In this regard we contribute to the literature via the analysis of two institutional ownership variables, neither of which have been used before in the CSR literature. The first is Investor Turnover – a weighted average measure of institutional churn rate based on the frequency of rotation of the stock held. Second is ∆ Institutional Ownership – a variable measuring changes in quarterly institutional ownership surrounding announcement of inclusion to the FTSE4Good Global Index.

In our last empirical analysis of this chapter, we address the often-ignored endogeneity issue in the CSR literature. Specifically, we determine whether firms found to be adopting CSR practices, all else being equal, are influencing the investment decisions of their institutional investors. From our event study (Chapter 3) and cross-sectional analysis (this chapter), we provide results that seem to imply institutional investors sell down those firms included to the...
FTSE4Good Global Index. This is evident in the significant and negative market reactions observed in our event study, given market reactions can largely be attributed to institutional movements; and greater cross-sectional associations with measures of institutional ownership trading behavior. However, for this proposition to be accurate, one very important assumption has been made – announcements of FTSE4Good inclusion is an exogenous firm-specific attribute hypothesised to affect institutional ownership.

That being said, there is every reason to believe that CSR inclusion is in fact endogenously determined by many of the same firm-specific features that affect changes in institutional ownership. For instance, lower institutional ownership post the CSR event could simply reflect the regular institutional decisions of balancing portfolios, or other events unrelated to CSR.

Therefore a fundamental evaluation problem arises in our previous empirical analysis: whether institutional movements are of a direct consequence of announcements of social index inclusion, or in fact determined by some other endogenous variable. In a recent review of the literature, Margolis et al. (2009, p. 27) note:

Too many studies speculate about mechanisms that explain results or end with a call to investigate them. It is time to study mechanisms systematically.

Thus towards this end, we control for endogeneity problems that may be inherent in our study via propensity score matching (PSM). In this section we answer whether institutional owners, all else being equal, are punishing firms found to be included in the FTSE4Good Global Index.
The remainder of this chapter is set out as follows. In the second section, we provide a theoretical background and literature review concerning the influence of slack resources and institutional ownership to CSR. In the third section, we develop the hypotheses related to the previous section, and which then provide the predictions underlying our explanatory variables. The fourth section provides a summary of our data and methodology used to investigate abnormal returns. In the fifth section we present our empirical results and interpretation of findings. The sixth section concludes this chapter.

4.1 Theoretical background and literature review

4.1.1 CSR and the slack resources theory

According to the slack resource theory, wealthier firms (financial or other) have greater freedoms to engage in socially responsible activities. Otherwise known as ‘slack resources’ or ‘surplus funds’, these are defined as spare or uncommitted funds above the minimum to maintain the organisation’s operations (Arora and Henderson, 2007), or excess resources that are beyond those required to produce the required level of output (Nohria and Gulati, 1996). Under these circumstances, firms in more favorable financial positions will face fewer difficulties in undertaking CSR activities. Slack resources can allow firms greater ability to meet the interests of their key stakeholder groups, to abide with society’s moral standards, and the flexibility to invest and improve environmental ‘footprints’. Firms with high prior CFP have the surplus funds necessary to engage in CSR (McGuire et al., 1988; Ullmann, 1985; Waddock and Graves, 1997; Garcia-Castro et al., 2010; Johnson and Greening, 1999), and thus attain high levels of CSP. Further by implication, despite a firm’s moral intentions to contribute to society as a valued corporate citizen, its engagement in such activities and ultimate success will depend on its previous or current financial performance. Thus firms that
choose to engage in CSR without the necessary level of surplus funds may be considered by
the capital market and investors to be erroneously allocating scarce resources.

The availability or lack of slack resources can explain the results of a 2002 global survey
among 1000 firms: while 94% believe CSR leads to higher financial performance, only 11%
of firms reported to engage in CSR activities.\textsuperscript{37} This result is consistent with corporate
managers citing high costs, insufficient resources and long pay-back periods as factors
preventing the successful implementation of socially responsible initiatives (Christie et al.,
1995; Zhuang and Synodinos, 1997).

While we emphasise the importance of slack resources in providing the ability to engage in
CSR, there is nevertheless a core argument against such activities. Barnett states:

\begin{quote}
\ldots even if a firm has slack resources but no favorable investment opportunities, and
even if the costs of CSR are not ample enough to put the firm at a competitive
disadvantage, the firm should still refrain from CSR. Devoting corporate resources to
social welfare is tantamount to an involuntary redistribution of wealth, from
shareholders, as rightful owners of the corporation, to others in society who have no
rightful claim (2007, p. 95).
\end{quote}

Thus despite the availability of slack resources, CSR can still be viewed as a “wasteful
discretionary act of management” (Brammer and Pavelin, 2006), and a value-destroying
exercise that should be austerely avoided.

\textsuperscript{37} For survey details refer to Keinert (2008).
In the next section we provide a brief literature review of studies investigating the implications of slack resource theory for CSR. We note although studies are not abundant in this area, they seem to support a positive correlation between slack resources and abilities to engage in CSR.

Waddock and Graves (1997) provides one of the first supports for the role of slack resources, finding CSP is positively related to prior financial performance indicators (such as return on sales, return on equity, and return on assets). In a similar vein, Hammond and Slocum Jr (1996) find the Fortune’s most admired firms are able to generate in the prior period more slack (in the form of return on sales) than their less-admired counterparts, and thus subsequently could attain higher social reputations. Judge and Douglas (1998) report that firms with greater sufficient resources (in the form of return on investment, earnings growth, sales growth) are better positioned to integrate environmental issues into their strategic planning process.

Seifert et al. (2004) ask a simple question: “does having lead to giving, and does giving, in turn, lead to getting?” They find slack resources in the form of cash flow to precipitate the level of cash donations to charitable causes. Although the authors control for firm size, they find slack resources continue to be the driving influence behind a firm’s ability to give.

Departing from the general linear consensus that higher financial performance leads to higher CSP, Stanwick and Stanwick (2000) find a non-linear relationship between environmental responsiveness and financial performance (based on return on assets). In particular, they find that while high-performing firms experience high levels of environmental policies, and low-performing firms experience the lowest levels of environmental policies (as expected due the availability of funds), the highest incidence of environmental polices was recorded by firms
with moderate levels of financial performance. They attribute this non-linear relationship to high-performing firms believing they have obtained all the potential benefits of environmental responsiveness, while median financial firms may engage in more environmental policies in their efforts to generate greater financial performance. In a recent study, Arora and Dharwadkar (2011) find high prior discretionary slack, in the form of cash and accounts receivables, is significantly related to higher CSP ratings. They conclude slack resources to provide the decision-making latitude in order to enable higher positive CSR.

**Summary and contribution**

Upon examining the literature investigating the slack resource effect on firms’ CSR engagement, it is clear the majority of studies use broad financial performance measures (such as return on equity, return on assets, sales growth) as proxy for slack. As Arora and Dharwadkar (2011) highlights, this can create investigative problems due to the still unclear relationship between slack and financial performance. For instance, while some studies find a positive relationship between slack and financial performance (for a review see Nohria and Gulati, 1996), other studies report a curvilinear relationship instead, where too much slack after a certain point becomes wasted through managerial self-interest and incompetence (Nohria and Gulati, 1996). Moreover, the use of broad financial performance measures does not distinguish between high discretionary slack – defined as uncommitted liquid assets (such as cash, cash equivalents, credit lines, low skilled labour etc.) or low discretionary slack – defined as absorbed costs (such as processed inventory and skilled labour).

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38 Implying a virtuous cycle to exist. See section 4.4 for a discussion.
Therefore in order to advance the current literature, future studies need to assess the varying discretionary nature of slack. As a first prudent step, we use variables of financial constraint not yet considered to a great extent in the CSR literature, but which can represent important measures of corporate financing abilities, given the variables’ importance to the capital structure of the firm. Moreover while we do not strictly define our variables in this section as low or high discretionary slack, for the purposes of this thesis (and as part of this first prudent step) we argue these variables have some form of ‘discretion’ – whether high or low. This is particularly the case when compared with the broader financial performance measures such as return on equity and return on assets previously used as proxies for slack. Herein we measure prior levels of financial constraints captured via dividend payout, capital expenditure and cash holdings.

4.1.2 CSR and institutional ownership

4.1.2.1 Introduction

In this section we explore how institutional ownership can have an association with the market reaction of announcements of social index inclusion. In particular, we review three core theories: institutional long-term motivations, short-term motivations (myopic behaviour), and the risk-adverse behaviour of institutional investors. In the last part of this section, we also provide a theoretical background underlying institutional trading and its cross-sectional impact on stock prices.

4.1.2.2 Institutional theory: long-term motivations

Institutional investors tend to be motivated to make long-term oriented investments for a number of reasons. Foremost begins with their significant resources and economies of scale
in their evaluation practices. This allows institutional investors to process greater knowledge about the market (Bernard, 1992), and make profitable investment decisions as a result (Aoki, 1984). The higher sophistication of their investment practices suggests that institutional investors are more rational shareholders and will not necessarily disapprove of expenditures that are likely to increase the long-term value of the firm. By the same token, large shareholders are more likely to invest for the long term, rather than gain from short-term movements in prices (Kochhar and David, 1996). Indeed institutional investors may attempt to influence top management to focus on the long-term interest of the shareholders, suggesting “… block-holders do not merely monitor management teams, they lead them” (Holderness and Sheehan, 1988).

This is in contrast to ‘shuffling’ stocks which can be destabilising due to the large shareholdings of the institutional investor (Kochhar and David, 1996; Pound, 1988). Further, new alternative investments may be difficult to come by, as the institutional investor may already own large stakes in many of the firms in the market (David et al., 1998). Given the costly nature of moving quickly in and out of stocks, the limited nature of alternative investments, and the level of involvement many institutional investors are now in the stock they own, simply exiting becomes problematic (Hirschman, 1970). It seems that overall, institutional investors have now become long-term holders by necessity (Graves and Waddock, 1994).

As board managers recognise the long-term motivations of institutional owners, they are less fearful of making business decisions that may cause investors to abandon the stock on transient changes in share prices (Mahoney and Roberts, 2007). Researchers have indeed argued that institutional investors with short-term motivations are systematically undervaluing expected earnings (Jarrell and Lehn, 1985; Jensen, 1986a). Some studies find
that institutional investors with high portfolio turnover (indicative of short-term horizons) underinvest in long-term projects such as research and development in order to reverse an earnings decline (Bushee, 1998b). Particularly from a CSR standpoint, genuine earnings can come in the form of higher employee productivity, lower litigation risks and the ability to provide better marketing of products and services. Through this understanding, corporate managers have the confidence to invest in CSR, while institutional investors have the fortitude to recognise the long-term benefits. Against this backdrop, a positive relationship between institutional ownership and corporate social performance is predicted.

4.1.2.3 Institutional theory – myopic short-term motivations

Over the years the level of institutional ownership has increased dramatically, causing what researchers have argued is a deterioration in the long-term competitiveness and financial performance of US firms (Graves and Waddock, 1994). These arguments claim that this is due to myopic institutional behaviour – managers pursuing short-term gains because their compensation, job security and advancement are tied to the need to continually show improved results, often based on quarterly performance (Magnet and Labate, 1993; Graves and Waddock, 1994). Moreover by acting as ‘traders’ rather than ‘owners’, institutional investors can place excessive focus on short-term goals (Bushee, 1998a). Thus any market information that suggests corporate earnings are threatened will translate to the divestment of that stock. In particular, as many CSR initiatives are of a long-term nature and have uncertain outcomes (Coffey and Fryxell, 1991; Klein and Zur, 2009), it is more likely CSR participation will impact short-term earnings in a negative rather than positive way. Thus short-term institutional investors may view participation in CSR as increasing the risk of their
short-term earnings. To be responsive, corporate managers will avoid investment in CSR, and those found to be committed to such will be sold down accordingly.

4.1.2.4 Institutional theory, risk and CSR

Institutional investors, like most market participants, are said to be risk-adverse. Certainly, Chaganti and Damanpour (1991) do find a negative association between institutional ownership and firms’ debt to capital ratios. Consequently, in order to consider the influences of institutional ownership, one must consider the potential relationship that may exist between risk and CSP. Spicer (1978) argues that institutional investors view firms with low social performance as riskier investments. This risk can come in the form of greater compliance costs, higher exposure to environmental litigation, poor employee productivity, mismanaged boards, and a lack of ability to remain competitive in current markets. Empirical studies do find that portfolios with high social ratings have lower total risk (Herremans et al., 1993; McGuire et al., 1988) and/or lower unsystematic risk (Boutin-Dufresne and Savaria, 2004; Lee and Faff, 2009).

If socially responsible firms are exposed to lower risk, then according to the efficient market theory, investment in socially responsible firms can be considered efficient, as investors can make selections based on maximising risk-adjusted returns. For instance, firms that are socially responsible can achieve the same return as their otherwise conventional counterparts, but with lower risk. Thus managers have an incentive to reduce risk by investing in CSR (Graves and Waddock, 1994). However, the notion that CSR is risk reducing is not universal. Scholars have argued that factors such as high costs, long payback periods, and uncertainty in outcomes can prevent successful engagement in CSR (Christie et al., 1995; Zhuang and Synodinos, 1997). In fact, these factors imply CSR may generate increasing risk. From a
portfolio investment perspective, Schröder (2007) and Collison et al. (2008) find that social indices are on average taking on constituents with higher risk as a result of their strict socially responsible criteria.

Expanding on the efficient market theory, Graves and Waddock (1994) argue that when institutional investors determine the appropriate risk-adjusted discount rate, they need to consider both the influence of their myopic behaviours and any risk changes (reductions or increases) pertaining to the CSR initiative. In particular, myopic institutional behaviour is associated with the discount rate (they preference current income over future income), while any risk changes will affect their risk adjustment. Accordingly, both influences must be considered simultaneously.

Reiterating Graves and Waddock (1994), if a firm undertakes a significant investment in social performance – for instance in pollution control – this will cause an immediate reduction to current cash flows, but it will not necessarily translate to the same risk reductions. This scenario can eventuate when either risk reductions are not high enough to offset the fall in cash flows or alternatively the impact of risk is unknown or unobservable as it occurs in the long run. In either case, myopic institutional behaviour predicts that the stock will be sold down accordingly. Conversely, if the fall in risk is foreseeable and therefore the risk-adjusted discount decreases, this can more than compensate for the fall in cash flows – and in such a scenario the stock now becomes more attractive.

39 Following Graves and Waddock (1994), we define institutional discount rate as the rate at which future income is discounted in preference to current income.
In summary, in order to predict the influence of CSR engagement on changes to institutional ownership, one must consider the effect on cash flows and the changes to risk pertaining to these activities. To the degree that CSR reduces risk while simultaneously offsetting the decrease in cash flows, and if these effects are foreseeable, risk-averse institutional investors will tend to choose firms with high social performance. Consequently, it can be expected that institutional investors will invest more heavily in firms actively involved in CSR, as this will translate to a greater optimal risk-adjusted return investment.

4.1.2.5 The price impact of institutional trading

There exist studies that show changes in institutional ownership have a strong positive cross-sectional relationship with changes in stock returns. For instance, Nofsinger and Sias (1999) find that the decile of stocks experiencing the largest annual increase in total institutional ownership outperform – by about 28 % per year – the decile of stocks that experience the largest decrease in institutional ownership. Similarly, Wermers (1999) find institutional investors, particularly those characterised as mutual funds, display comparable behavior; that is, stocks that were bought by mutual funds experienced significantly higher subsequent abnormal returns compared with stocks that were sold by mutual funds. The sources of this positive correlation can be attributed to three hypotheses: (1) momentum investors (positive feedback trading), (2) informed trading (forecasting), and (3) contemporaneous price pressure.

The first hypothesis occurs when the institutional investor trades based on yesterday’s prices, a trading behavior otherwise known as momentum, positive feedback or trend chasing. Models of investor behavior often attribute this to uninformed individuals (for example, De Long et al., 1990), while others in contrast (for example, Long et al., 1990) allow for rational
speculators. Other models show managers may trade with the trend due to slowly diffusing private information (Froot et al., 1992; Hirshleifer et al., 1994; Hong and Stein, 1999), career considerations (Scharfstein and Stein, 1990), or the information inferred by other traders (Bikhchandani et al., 1992). Indeed, Griffen et al. (2003) provide evidence that institutional trading follows short-term past returns, finding that stocks with the most extreme returns were 23.9% more likely to be bought by institutions than those in the bottom decile of return performance.

The information-trading hypothesis explains positive correlations can arise if institutional investors are successfully forecasting intra-period returns. Thus, if these investors can make better and more informed trades (for example, due to economies of scale), stock purchases should outperform those of the stocks sold. Recent studies report results in line with this rationale, revealing measures of institutional buying positively correlate with subsequent stock returns (for example, Grinblatt and Titman, 1989; Daniel et al., 1997; Wermers, 1999; Nofsinger and Sias, 1999; Chen et al., 2002)—thus showing that positive correlations between changes in institutional ownership and future stock returns can to an extent be explained by the forecasting abilities of the institutional investor.

The price pressure hypothesis asserts institutional buying generates a price pressure that will increase stock prices. This hypothesis is quite intuitive, as it seems reasonable to expect buying activity from large institutional owners will apply positive price pressure to the affected stock. If institutional trading causes price pressure, we should observe a systematic correlation between changes in institutional ownership and contemporaneous returns (Sias et al., 2001). Sias et al. (2001) use a covariance decomposition method to find the relationship between changes in quarterly institutional ownership and daily returns are predominately explained by the price pressure hypothesis.
In the next section, we review the empirical studies investigating changes to institutional ownership and the CSR event. Note that due to the lack of empirics and data in this thesis, and like previous authors cited in the literature review, we do not explicitly explain sources of the observed correlation (that is, momentum, informed trading or contemporaneous price pressure) between institutional ownership and CSR. Extensions to this research field will be left for future studies.

4.1.2.6 CSR factors and their relationship with institutional ownership

Coffey and Fryxell (1991) emphasises the need to understand how social performances can “lure or inhibit capital infusions” (p. 437) in relation to their institutional investors. This is particularly the case as social forces gain greater traction in influencing corporate policies, and a growing number of institutional investors now incorporate non-economic as well as economic criteria in their investment decisions. One of the first studies to address this relationship empirically is by Coffey and Fryxell (1991), who find mixed results. For instance, while a positive relationship between corporate social responsiveness (measured by the presence of woman directors) and institutional ownership is found (in which for every additional woman on the board, institutional ownership will increase by an average 5.5 %), a contrasting negative relationship emerged in relation to a corporation’s level of compliance with the Sullivan Principles, in which low compliance is related to an 11 % increase in institutional ownership. Lastly they find no significant relationship between institutional ownership and charitable giving. While their results are certainly mixed depending on CSP proxy selected, at best it may be an indication of institutional investors’ preferences

40 At the time of the studies investigation, the Sullivan Principles provides a three-point scale on the level compliance to a set of corporate codes designed to eliminate racial oppression in South Africa.
depending on specific social criteria. At worst their results may be confounded because they do not control for firm level profit, size, and industry.

Graves and Waddock (1994) ask a simple question: “does a high level of CSP lead to an increase in institutional ownership?” They construct a new CSP index by aggregating eight different dimensions of CSP, and find mostly positive associations with institutional ownership. A significant and positive relation exists between social performance and number of institutional investors, and a non-significant but positive relation exists between social performance and percentage of shares held by institutional investors. They conclude that overall improvements in CSP invoke no penalty in ability to attract institutional investment, with at least one proxy (number of institutional investors) showing significant and favourable outcomes for higher social performances. The authors explain their results using efficient market theory and institutional risk-aversion behaviour. For instance, firms that are socially responsible can obtain the same return as their otherwise conventional counterparts, but with lower risk (through such benefits as avoiding customer retaliation and adverse regulatory actions). Indeed, controlling for size, financial performance and industry finds a negative link between debt-to-asset ratio (a proxy for risk) and institutional ownership. Thus through their risk-reducing initiatives, institutional investors will show greater preference for higher CSP, and ultimately create an incentive for managers to invest and spend more in CSR (Graves and Waddock, 1994).

Mahoney and Roberts (2007) provide one of the first large-scale studies to examine the relationship between institutional ownership and CSP. Using a measure of CSP to test both the composite and individual dimensions of the CSP rating, they find varying results depending on the component of CSP analysed, and, more interestingly, the proxy of institutional ownership selected. For instance, firms with high composite CSP ratings were
found to have higher percentage of shares owned by institutions. Examining the individual dimensions of CSP, they find the ‘international’ and ‘product’ dimensions to be driving this effect. In contrast, the number of institutional investors was found to have a negative association with the ‘environmental’ dimension, suggesting institutional investors avoid firms with high environmental performance. Overall their results support the notion that institutional investors care about the way firms manage their CSP, and with the exception of environmental performance, these investors did not penalise firms engaging in such activities.

While previous studies have assumed institutional investors trade in a similar way, Johnson and Greening (1999) find distinct differences in trading behaviour between ‘pension fund equity’ and ‘investment management funds’ (that is, mutual funds and investment banks). The authors report while a positive relationship exists between pension fund equity for both the CSP dimensions of the ‘people construct’ and the ‘product quality construct’, they find no such relationship is evident for institutional investors classified as investment management funds. They conclude pension fund managers are able to recognise the long-term benefits of CSR investment. Moreover, their results are consistent with parallel findings showing 91% of institutional activism involves social issues raised by pension fund equity.

Hong and Kacperczyk (2009) analyse the impact of CSR based on a different approach, theorising a social norm against investing in ‘sin’ (stocks in the production of alcohol, tobacco and gambling). They find evidence consistent with an institutional discrimination against these stocks. ‘Sin’ stocks are found to comprise significantly lower institutional ownership – of about 18% – and in turn lower analyst coverage (as analysts tend to cater for institutions) – of about 16% compared with the mean.
One of the most recent studies in this field is Barnea and Rubin (2010), who find high levels of insider ownership, defined as holdings by corporate managers, directors and block holders to have a negative relationship with CSP ratings. As higher CSP ratings can be a proxy for higher CSR expenses, the authors propose this is evidence that insiders are avoiding CSR due to the activities’ higher expenses and consequently imposing lower firm value. As insiders are largely entrenched at relatively low levels of ownership (Morck et al., 1988), ownership past this entrenchment level can begin to better align the interest of the insiders with the objectives of maximising firm value. Thus as insider ownership increases, they avoid greater amounts of CSR, as further participation in these type of activities must be harming firm value. However, while insider ownership is found to have a significant relationship with CSR, the variable of total percentage of institutional ownership has no such association.

4.1.2.7 Summary and contribution

The extant research so far has provided mixed results for the relationship between institutional ownership and CSP. For instance, while some research finds institutional owners have lower levels of investment in firms with a socially responsible mandate (Coffey and Fryxell, 1991; Barnea and Rubin, 2010), others find no such penalty applies (Graves and Waddock, 1994; Mahoney and Roberts, 2007). Interestingly, one study finds a social norm against ‘sin’ stocks, in which lower institutional ownership was found (Hong and Kacperczyk, 2009). We argue a major a basis for the inconsistency in results so far is due to the majority of studies in this field having assumed all institutional investors are homogenous.

41 For instance KLD ratings define high CSR ratings as those participating in charitable giving, support for education, support for housing, retirement benefits etc., all of which can be argued to require a significant commitment of firm resources.
in their investment decisions. However, as the studies by Barnea and Rubin (2010) and Johnson and Greening (1999) reveal, there can be differences between institutional investors’ styles and goals that can dictate differences in their reaction to CSR.

We believe an important dimension of heterogeneity is the investment horizon of the institutional shareholder. While Johnson and Greening (1999) employ a classification of institutional investors into long-term or short-term horizons (investment managers versus pension fund equity), and Barnea and Rubin (2010) hypothesise that public pension funds are more likely to pursue CSR agendas compared with managed investment funds (who presumably have shorter term horizons), both authors use fairly limited measures to actually distinguish between short-term or long-term investment horizons. Instead, the authors use broad category labels or assumptions to indicate differences in this heterogeneity behaviour.

Further, while the literature in this area suggests changes to social performance are responsible for changes to institutional ownership, their joint failure to examine *transient changes* in institutional ownership fails to directly test for this possibility. In so far, the literature has used ‘stagnant’ (or one-point-in-time - often yearly) measures of institutional ownership, either being ‘the number of institutional investors’ (Coffey and Fryxell, 1991; Graves and Waddock, 1994; Mahoney and Roberts, 2007), or the ‘total percentage of institutional shareholdings’ (Graves and Waddock, 1994; Johnson and Greening, 1999; Mahoney and Roberts, 2007; Barnea and Rubin, 2010).

Thus we contribute to the literature via the introduction of two institutional ownership variables that can address the aforementioned limitations. To the best of our knowledge neither institutional variable has yet been considered in the CSR literature. The first is *Investor Turnover* – defined as the weighted average measure of a firm’s institutional investor churn rate one year prior (or four quarters) to announcement of social index inclusion.
Through this variable, we are able to distinguish long-term holders from short-term holders more accurately using an empirical measure of actual holding periods. Second, we analyse changes in institutional ownership by observing differences in current and post quarterly holdings surrounding announcement of inclusion to the FTSE4Good Global Index. Through \( \Delta \text{Institutional Ownership} \) we isolate transient changes in institutional ownership as close as possible to the CSR signalling event.

Through the examination of these variables, we contribute to the literature by investigating whether announcements of social index inclusion and the market reaction that follows, can be explained in part by either the buying activity of new or existing shareholders after the CSR event, and/or to differences in institutional investment horizons, particularly their willingness to hold long-term stocks. Consequently by using both institutional ownership variables, we hope to alleviate the ambiguity in previous findings regarding institutional investors and their impact to CSR. Moreover we control for endogeneity to these latter results via propensity score matching (PSM) in our robustness section.

4.2 Hypothesis development

In this section we review our hypotheses concerning both our measures of financial constraint and institutional ownership. These hypotheses are employed to investigate the firm-specific conditions necessary for either positive or negative market reactions to announcements of inclusion to the FTSE4Good Global Index.

Our measures of financial constraints are dividend payout, capital expenditure and cash holdings; and our measures of institutional ownership are changes in quarterly ownership and investor turnover. We review the hypothesis of these variables in turn.
4.2.1 Financial constraints

One of the most important policy decisions a corporate manager faces is the dividend policy of the firm. Indeed dividends are important to investors for a few reasons: they provide signals about a firm’s financial well-being; are attractive to investors looking for secure income; and help maintain the market price of the firm (Gill et al., 2010). When it comes to increasing or decreasing dividends, Lintner (1956) observes corporate managers are more willing to raise dividends compared with decreasing dividends, as the latter decision can potentially provide negative signals to the market on the future prospects of the firm. The negative consequences inherent in this relationship are the focus of numerous studies (Bhattacharya, 1979; John and Williams, 1985; Miller and Rock, 1985; Ambarish et al., 1987).

Moreover, while much of the literature considers firms that pay high dividends are less financially constrained⁴² (and thus in theory more able to engage in CSR activities), the opposite conclusions have been found in empirical studies including US evidence by Kaplan and Zingales (1997) and Cleary (1999), and international evidence by Kadapakkam et al. (1998). More recently, Cleary (2006) finds firms with high dividend payouts are more sensitive to investment cash flow (that is, investment outlays with greater sensitivity to availability of internal funds) than firms with lower dividend payouts, despite their attempts to control for size and financial strength.

⁴² While the exact definition remains unclear, we follow Kaplan and Zingales (1997) and define a firm as being high financially constrained if: “… the cost or availability of external funds precludes the company from making investment it would have chosen to make had internal funds been available”.

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Further, from an agency theory perspective, dividend policies can address the agency problems between the corporate managers (the insiders) and the shareholders (the outsiders). Accordingly (and supported by Easterbrook, 1984; Jensen, 1986b; Gomes, 1997), unless profits are paid out in dividends, they may be diverted for the discretionary use of the corporate insider, or similarly committed to unprofitable projects for private benefits (La Porta et al., 2000). As a consequence, shareholders will prefer dividend income as opposed to retained earnings, which may be subject to the discretionary use of the corporate manager.

In relation to CSR, scholars have indeed argued corporate philanthropy (one of many branches of CSR) is likely to benefit only managers’ self-interest rather than maximise shareholder value (Atkinson and Galaskiewicz, 1988; Friedman, 1970). For instance, corporate philanthropy can be used to advance managers’ reputation, self-image or personal prestige (Galaskiewicz, 1997; Haley, 1991). Against this backdrop, the diversion of retained earnings to compensate for CSR activities (or managerial self-interest) can be seen as a subtraction from future dividend income, and therefore to the detriment of shareholders’ interests.

Our search of the literature reveals only two studies that investigate the consequences of such commitments to current dividend policy.

The first study by Rakotomavo (2012) finds CSR commitment has no effect on dividend income. This is attributed to two reasons. First, corporate managers are reluctant to decrease dividends (consistent with Lintner, 1956), and second, firms that engage in CSR may have the accumulated resources necessary to not require changes to dividend policy.

The second study by Surroca and Tribó (2009) finds CSR ratings have a negative effect on dividend income, a finding which implies generous dividend policies to impede the
engagement in socially responsible activities. Further as there is a reluctance to decrease dividends (as per Lintner, 1956 and consistent with Rakotomavo, 2012), we argue by extension implies firms with high dividend yields will face greater pressure to maintain current dividend yields - a task that has become considerably more difficult given the announcement of CSR inclusion, and the significant commitment of resources required if the firm wishes to remain eligible in the social index.

Considering the arguments and previous results presented, we hypothesise that announcements of social index inclusion provide signals of CSR commitment, and consequently a diversion of funds that may have otherwise been earmarked for future dividend income. Moreover the diversion of funds is hypothesised to be more sensitive depending on a firm’s ability to maintain current dividend yields, with generous dividend policies more difficult to maintain compared with less-generous policies (that is, low dividend payout). Thus we hypothesise dividend payout will have a negative association with announcements of CSR inclusion.

**H1: Firm dividend payout is negatively associated with CSR engagement (as measured by market reaction).**

Capital expenditure represents one of the most significant long-term investments of a company, often key to a firm’s ability to generate important cash flows. Firms in the US, for example, were found in 2012 to spend about 7.2 % of their annual revenue on capital expenditure (Fitch Ratings, 2013).
From a financial constraint perspective, high capital intensity can tend to create rigidity in organisations as fixed costs are high and deviations from strategies become costly (Ghemawat, 1991). This is consistent with Korajczyk and Levy (2003) who find that firms that are financially constrained tend to have greater capital intensity. Thus similar to Skinner (1993) we consider capital expenditure intensity to be proxy for ‘assets-in-place’. Moreover, as capital intensive industries will likely be leveraging investments, cost and efficiency factors will take on greater importance (Datta et al., 2005), consequently reducing the range of strategic options available and the potential for uncertainty in outcomes (Rajagopalan and Finkelstein, 1992).

As decisions to engage in CSR can require a significant commitment of resources (for example, GE was reported to spend about 15 % of the company’s profits on CSR-related expenses), while the outcomes of these activities remain uncertain until the longer term (Coffey and Fryxell, 1991; Klein and Zur, 2009), we predict there is a negative relationship between capital intensity and market reaction to CSR.

Moreover, announcements of social index inclusion can be seen as a subtraction of important cash flows from future capital expenditure decisions. Indeed previous studies have established operating cash flows to be an important determinant of capital expenditure (see for example, Griner and Gordon, 1995; Fazzari et al., 1988). Thus if CSR engagement is perceived to risk the available funds for capital investment, the consequences of such announcements will be negative market reactions. Indeed, through extension, McConnell and Muscarella (1985) find announcements of decreases in capital expenditure lead to significant negative returns for industrial firms. In addition, Hung and Wang (2014) find stock markets react negatively to mandatory CSR reporting, and firms had lower capital expenditure post
CSR mandate, which is consistent with higher imposed costs and greater burden to operations.

**H2: Firm capital expenditure is negatively associated with CSR engagement (as measured by market reaction).**

According to the US Federal Reserve, by the end of 2012 US non-financial corporate businesses held a record $1.79 trillion of cash and marketable securities (Federal Reserve, 2013). To put this value in perspective, the sum of these liquid assets represented approximately 11% of the annual US GDP in the same period. The motivation to hold these large reserves of cash can be explained by the trade-off model, and in particular the transaction-cost motive.

According to the transaction-cost motive, firms hold more cash when the cost of raising funds, and the opportunity cost of shortfalls in funds, are high (Dittmar et al., 2003). For instance, substantial fixed costs may exist when raising external equity, where small firms are likely to face more-costly prospects compared with larger firms. Moreover, firms with better investment opportunities are expected to hold more cash, as the opportunity cost of lost investment is greater for these types of firms. Likewise, firms with unstable cash flows hold more cash to safeguard against the higher likelihood, and subsequently greater costs, of cash shortfalls (Dittmar et al., 2003).

---

43 In 2012 the total US GDP was $15.684 trillion.
Opler et al. (1999) and Dittmar et al. (2003) find substantial support for the tradeoff model. Firms with more cash holdings have higher investment and research and development expenditures, greater growth opportunities (as proxy by market-to-book) (Opler et al., 1999; Dittmar et al., 2003), are smaller in size and tend to have more volatile cash flows (Opler et al., 1999). These characteristics will either increase the cost of raising external funds (for example, volatile cost flows represents greater risk), or increase the cost of cash shortfalls (the costs in missed opportunity).

Moreover, Almeida et al. (2002) focus on the importance of financial constraints, particularly for those firms that may not be able to raise sufficient funds for future expected needs, and thus may decide to hold more cash now to fund potential investment opportunities. According to the authors: “If a firm has unrestricted access to external capital – i.e. if a firm is financially unconstrained – there is no need to safeguard against future investment needs and corporate liquidity becomes irrelevant” (p. 1777). Indeed recent evidence by Faulkender and Wang (2006) and Pinkowitz and Williamson (2004) shows that constrained firms place higher value on cash holdings than unconstrained firms.

In summary, high cash holdings can indicate that firms have either costly external financing, higher investment expenditure, greater investment opportunities, more volatile cash flows, or simply higher financial constraints, and thus the choice to engage in CSR under these circumstances is hypothesised to have a negative relationship with market reaction. That is, if these underlying characteristics are in place, the market does not price the announcement of social index inclusion as value adding.

**H3: Firm cash holdings are negatively associated with CSR engagement (as measured by market reaction).**
4.2.2 Mediating role of institutional investors

If CSR is interpreted as a value-enhancing exercise, we anticipate institutional investors will demonstrate buying activity, shown by an increase in institutional ownership after the CSR announcement. Thus we hypothesise positive changes in quarterly institutional ownership are related to higher market reactions to CSR. Alternatively, if CSR is interpreted as a value-destroying activity, then announcements of social index inclusion, all else being equal, will see a fall in institutional ownership (that is, institutional selling), and thus lower market reactions will result.

Whichever the final outcome, both results are consistent with studies that document a strong positive relationship between changes to institutional ownership and changes to stock prices (see section 5.2: The price impact of institutional trading). Moreover, the information effects that lead to institutional selling (buying) can lead to further price depressions (appreciations) if other investors view the change in ownership structure to indicate future returns. Brown et al. (1993) provide evidence of price pressure resulting from institutional selling, while Bikhchandani et al. (1992) develop a model in which institutional investors infer information from each other’s trades.

Nevertheless, while movements in institutional ownership are subsequently found to explain the cross-sectional determinants of abnormal returns related to our study, this result does not preclude the possibility that a certain type of institutional investor may be driving this observed effect. In particular, we propose an important heterogeneous factor is the investment horizon of the institutional investor, which according to myopic institutional theory tends to be short-sighted (Hansen and Hill, 1991). This has important implications for our study, as
CSR is generally considered to be a long-term commitment – and thus can have significant implications for the willingness of certain institutional investors to hold CSR stocks.

For instance, if the adoption of CSR practices reduces firm value in the short run, then one would expect myopic institutional investors to avoid this type of activity. However, if the institutional investor is more inclined to invest for the long term, they may be more able to recognise the long-term value of CSR, and thus be comfortable to bear any short-term burden. Under this scenario, we expect long-term institutional investors to be more heavily involved in CSR stocks, while short-term investors motivated by myopic behaviour will divest away from such firms.

In order to distinguish between differences in investment horizons, we propose that short-term investors will buy and sell their investments more frequently compared with their long-term counterparts, who may hold their positions unchanged for the long term. The underlying proposition is that short-term shareholders are driven by short-run profits, which tend to translate to more frequent trades to exploit price differentials based on the intrinsic value of the stock. In addition, short-term shareholders have been linked to pressuring managers to focus on short-term goals, often at the expense of long-term value. Indeed Lang and McNichols (1997) find significant differences in portfolio turnover and earnings-based trading when institutional investors are classified into their varying types (for example, investment advisors, bank trust, pension funds). Moreover, firms characterised by institutions with high portfolio turnover are found to underinvest in long-term projects such as research and development in order to reverse an earnings decline (Bushee, 1998b), while more recently high institutional turnover have been found to encourage greater short-term price manipulation by corporate managers (Goldman and Strobl, 2013).
Empirically we define the frequency of a corporation’s institutional turnover as the weighted average measure of the institutional investor’s churn rate one year prior (or four quarters) to the announcement of social index inclusion. Thus we propose firms characterised by high investor turnover (that is, characteristic of firms with short-term institutional shareholders), will perceive announcement of social index inclusion to be counterintuitive to their short-term goals.

Indeed many social initiatives require an immediate and often significant investment of corporate resources (for example, initiatives to minimise environmental footprints), while their future benefits remain unknown until the long term (for example, greener reputation, lower compliance costs). Consequently, firms characterised by high investor turnover will see their institutional investors divest away from their stock upon announcement of the CSR event.

Formally, we express both hypotheses related to our institutional variables as follows:

**H4A: Negative market reactions are related to a decrease in institutional ownership post event.**

**H4B: Negative market reactions are related to higher institutional turnover (short term shareholders).**

### 4.3 Data and methodology

#### 4.3.1 Data sources

As well as re-using our previous data sources of firm inclusion in the FTSE4Good Global Index and various accounting data and market price data from Worldscope (see section 3.3.1),
in this chapter we also employ Bureau van Dijk-Orbis for our collection of institutional ownership data. The following is a brief description.

4.3.1.1 Bureau van Dijk-Orbis

Bureau van Dijk-Orbis contains both private and public data for over 120 million companies across the globe. Working with numerous information providers (IPs), Bureau van Dijk-Orbis has created a unique and aggregated dataset for researchers and industry users alike. In particular, their focus is on providing associated news and independent research, corporate ownership structures, original filed documents, information on important corporate individuals (for example, CEOs), and global mergers and acquisitions deals and rumors. Most relevant to our research is their ownership database, which has over 30 million shareholder subsidiary links. Bureau van Dijk-Orbis collects this information from a variety of sources including: official registers (for example, SEC filings and stock exchanges), annual reports, private correspondence, telephone research, company websites and news wires. This dataset is evaluated for accuracy and timeliness on a monthly basis, and consequently is well regarded for its scope and precision.

Alternative sources of institutional ownership data

Past studies analysing the impact of institutional ownership to CSR activities focus only on US firms, and thus have used databases catering only to this country context. Common databases include: Standard and Poor's Stock Guide (most used), Compact Disclosure, CDA Spectrum Database, or the use of primary data extracted directly from proxy statements and 13F schedules. Clearly these databases are unsuitable for our global sample.
4.3.2 Sample of interest

The objective of our second empirical chapter follows the findings of our first, in which we find negative abnormal returns are associated with announcements of social index inclusion. Thus we seek to explain this negative market reaction using firm-specific characteristics (measures of financial constraints plus control variables), as well a measure of changes in institutional ownership and their trading behaviour. We achieve this analysis through OLS cross-sectional regression. We use the following data and steps:

- We begin by assembling the 651 firms and their corresponding abnormal returns calculated in our earlier analysis in Chapter 3. From here, we construct our dependent variable as the five-day cumulative abnormal return (CAR) surrounding announcements of inclusion in the FTSE4Good Global Index.

- To form our regression and construct our first set of variables, firms included must have accounting data (control variables plus financial constraint variables) available from the Worldscope database. Using firm ISIN codes, we collect a history of all relevant accounting variables according to the period required. Further, all accounting variables refer to the last full fiscal year before inclusion in the FTSE4Good Global Index. This leaves us with a sample size of 450 firms based on a ‘common’ sample count.

- Our final set of variables for this chapter involves institutional ownership data sourced from Bureau van Dijk-Orbis. As institutional ownership data is only consistently available post March 2008, the inclusion of ownership variables will restrict our sample period to only March 2008 to March 2012. This is as opposed to our full sample period covering September 2003 to March 2012. Consequently our sample
size is reduced significantly to 96 firms. To account for this large change in sample size, we provide three altered equations as part of this analysis. Equations 1 and 2 use a sample size of 450 firms (all explanatory variables, but excluding our institutional variables), while Equation 3 employs a sample size of 96 (all explanatory variables plus our institutional variables).

In section 4.5 we also provide robustness assessment of our institutional ownership results. In particular, we address the endogeneity issue between changes in institutional ownership and the market reaction (negative or positive abnormal returns) to announcements of inclusion to the FTSE4Good Global Index.

We achieve this analysis by employing propensity score matching (PSM). The basic principle of this methodology rests on the construction of a control group (non-CSR firms) and treatment group (CSR firms). Thus the data required for this section is as follows:

- Data for our CSR group (the treatment group) are sourced from our earlier empirical analysis. Further we restrict this sample to US firms only. This is to ensure country-specific consistency in our results and greater robustness in the matching procedure.

- To construct our non-CSR group (the control group) we source a random sample of 5000 US firms. Using Worldscope, we collect the appropriate data required to provide analysis for this group of control firms. Based on the aforementioned specifications (institutional ownership data plus US firms plus control variables), our sample size for this analysis decreases to 56 firms.

For a summary of the steps involved in data construction and the ultimate arrival of our final sample size please refer to Appendix 2: Flow Chart 2.
4.3.3 Construction of variables

The second and third objectives of this thesis are to explain sources of abnormal returns related to our first empirical chapter. Specifically, we use a number of firm-specific characteristics to examine sources of abnormal returns, as well as institutional ownership variables, to capture the mediating role of institutional investors.

Consequently, in this section we examine our explanatory variables divided into three areas: our financial constraint variables, institutional ownership variables and our set of control variables.

4.3.3.1 Financial constraint variables

Capital expenditure is defined as capital expenditure over total assets \((\text{CAPEX})\). Dividend payout is measured as net dividends over operating income \((\text{Payout})\). Holdings of cash are defined as total cash and marketable securities over total assets \((\text{Cash})\).

4.3.3.2 Institutional ownership variables

We construct two measures of institutional ownership. They are post quarterly institutional ownership versus current quarterly institutional ownership \((\Delta \text{Institutional Ownership})\). Formally:

\[
\Delta \text{Institutional Ownership} = \text{Post quarter institutional holdings} - \text{Current quarter institutional holdings}
\]

and institutional turnover, defined as the weighted average measure of a firm’s institutional investor churn rate one year prior (or four quarters) in relation to announcement of index inclusion. To formally arrive at this calculation, we first calculate for each institutional
investor a measure of how frequently the investor rotates his/her position in the invested stock. In the same spirit as Gaspar et al. (2005), Carhart (1997) and Barber and Odean (2000), we define the churn rate of investor \( i \) holding stock \( j \) at quarter \( t \) via the following function:

\[
CR_{i,t} = \frac{|N_{j,i,t}P_{j,t} - N_{j,i,t-1}P_{j,t-1} - N_{j,i,t-1} \Delta P_{j,t}|}{\frac{N_{j,i,t}P_{j,t} + N_{j,i,t-1}P_{j,t-1}}{2}}
\]

Where \( P_{j,t} \) and \( N_{j,i,t} \) measure price and the number of shares, respectively, of stock \( j \) held by investor \( i \) at quarter \( t \). Calculating the churn rate for each institutional investor is necessary to then construct the overall measure of "investor turnover," which is an empirical measure of the investment horizon of institutional shareholders in the stock prior to the social event of interest.

We measure investor turnover of stock \( k \) as the weighted average of the total portfolio churn rate of its institutional investors over the last four quarters prior to announcement of CSR index inclusion. Where the set of shareholders in stock \( k \) is denoted by \( S \), while the weight of investor \( i \) as a total percentage held by institutional investors at quarter \( t \) is \( W_{k,i,t} \).

\[
\text{Investor turnover of stock } k = \sum_{i \in S} w_{k,i,t} \left( \frac{1}{4} \sum_{r=1}^{4} CR_{i,t-r+1} \right)
\]

Overall the construction of "investor turnover" is based on a one-year history of investor trading behavior. Note, those investors without a one-year history are excluded from our analysis.

Unless otherwise specified, all variables collected refer to the last full fiscal year before announcement of inclusion to the FTSE4Good Global Index. A one-year lag is commonly used in prior research and seems to represent a reasonable amount of time to capture the
influence of the dependent variable, without permitting too many confounding variables to influence the hypothesised relationship.

4.3.3.3 Control variables

We also include a number of firm-level control variables. To capture firm size, we use the natural logarithm of market value (Size). Firm profitability is measured via return on equity (ROE) and asset turnover (Asset Turnover), with the latter defined as sales over total assets. Leverage (Leverage) is defined as total debt over total assets. In addition, following Clacher and Hagendorff (2012) we control for firm growth, defined as the geometric asset growth rate of total assets three years prior to the CSR event. We use geometric average as opposed to arithmetic average as it can represent a more accurate measure of ‘true growth’, especially when year-to-year growth is erratic (Damodaran, 2009). Moreover, Cooper et al. (2008) report for large capitalised firms, asset growth predicts the cross-section more pronouncedly compared with other growth variables such as book-to-market.
Table 12: Variable definitions and summary statistics

Unless otherwise specified all variables collected refer to the last full fiscal year before inclusion to the FTSE4Good Global Index. Accounting data are from Worldscope, and institutional shareholding data are from Bureau van Dijk-Orbis. Due to the inclusion of the institutional ownership variables, sample size for those related variables is 96 (common sample count). All variables are winsorized at the 2% level.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition</th>
<th>N</th>
<th>VIF</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Natural logarithm of market value</td>
<td>450</td>
<td>3.4</td>
<td>9.544</td>
<td>2.856</td>
<td>3.900</td>
<td>14.369</td>
</tr>
<tr>
<td>Leverage</td>
<td>Total debt over total assets</td>
<td>450</td>
<td>1.6</td>
<td>0.267</td>
<td>0.185</td>
<td>0.001</td>
<td>0.715</td>
</tr>
<tr>
<td>ROE</td>
<td>Earnings before interest and tax (EBIT) over the book value of common equity</td>
<td>450</td>
<td>1.6</td>
<td>10.925</td>
<td>15.282</td>
<td>-45.437</td>
<td>56.863</td>
</tr>
<tr>
<td>Capex</td>
<td>Capital expenditure over total assets</td>
<td>450</td>
<td>1.4</td>
<td>0.043</td>
<td>0.027</td>
<td>0.003</td>
<td>0.090</td>
</tr>
<tr>
<td>Payout</td>
<td>Net dividends over operating income</td>
<td>450</td>
<td>1.2</td>
<td>0.243</td>
<td>0.293</td>
<td>-0.355</td>
<td>1.323</td>
</tr>
<tr>
<td>Cash</td>
<td>Cash and marketable securities over total assets</td>
<td>450</td>
<td>1.4</td>
<td>0.109</td>
<td>0.112</td>
<td>0.004</td>
<td>0.570</td>
</tr>
<tr>
<td>Growth</td>
<td>Geometric growth in total assets over the three years before FTSE4Good Inclusion</td>
<td>450</td>
<td>1.6</td>
<td>0.102</td>
<td>0.174</td>
<td>-0.158</td>
<td>0.686</td>
</tr>
<tr>
<td>Asset Turnover</td>
<td>Sales over total asset</td>
<td>450</td>
<td>1.5</td>
<td>0.891</td>
<td>0.584</td>
<td>0.027</td>
<td>2.771</td>
</tr>
<tr>
<td>Δ Institutional Ownership</td>
<td>Post quarter institutional shareholdings less current quarter institutional shareholdings (%) change</td>
<td>96</td>
<td>1.3</td>
<td>0.030</td>
<td>0.188</td>
<td>-0.428</td>
<td>0.695</td>
</tr>
<tr>
<td>Investor Turnover</td>
<td>Average institutional churn rate over the previous 4 quarters before FTSE4Good inclusion</td>
<td>96</td>
<td>1.7</td>
<td>0.116</td>
<td>0.142</td>
<td>0.001</td>
<td>0.768</td>
</tr>
</tbody>
</table>

Complete variable definitions and summary statistics are provided in Table 12. From Table 12, we report the following key descriptive statistics and make comparisons to an international average where appropriate: CSR firms on average employ a leverage ratio of 26.7 %, a figure similar to their international peers of 29 % (see Fan et al., 2012, study of 39 countries), mean ROE and asset utilisation indicate positive profitability prior to the year of announcement of inclusion (indicating prior wealth to allow firms greater abilities to engage in CSR); and which runs in line with an average 10.2 % geometric growth in total asset over the last three years; CSR firms on average commit more resources to capital expenditure compared to a recent global CAPEX study (see Standard & Poor, 2015, in which they report a
global average capital intensity over sales of 9.15 % versus our sample equivalent 13.67 %); CSR firms on average pay lower dividends of 24.3 % compared to the MSCI World average of 39.0 % (see Glenning et al., 2014, extensive report on dividend growth); mean cash holdings including marketable securities is 10.9 %, and is similar to an international study of approximately 9 % of book assets (see Lins et al., 2010, survey of CFOs across 29 countries); and lastly quarterly institutional shareholdings show an average increase of 3.0 % surrounding announcement of social index inclusion. Examining variance inflation factors (VIF) reveals no multicolinearility issues between the explanatory variables, which includes our consideration of fix effects variables. Average VIF is 1.67, while all factors remain under the critical value of 10 (Neter et al., 1989).

4.3.3.4 Fix-effects variables

In the next section we review our fix-effects variables.

Industry effects

Industries can vary in a number of characteristics, which can have varying influences to their impact to CFP. For instance, some industries can be considered more vulnerable to higher CSR practices (and therefore higher implied expenses) such as heavy manufacturing or chemicals; while others could be experiencing a phase of growth or decline (Bowman and Haire, 1975; Griffin and Mahon, 1997; Spencer and Taylor, 1987).

To control for industry effects we use industry dummy variables. Dummy variables are constructed and are assigned a value 1 when denoting one of the following possible

\[ \text{Capital intensity for comparison purposes is defined as capital expenditure over sales.} \]
industries: basic materials, consumer goods, consumer services, health care, industrials, oil and gas, utilities, technology, telecommunications, and financials (classifications following ICB). Note our set of industry classifications is complete and mutually exclusive.

**Country effects**

As our sample of firms spans 24 countries, we incorporate country dummy variables to control for regional and political effects. For example, it is possible that differences in governing regulations (such as environmental protection policies) can lead to differences in levels of corporate sustainability (and thus final impact to CFP). The countries in our sample are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, Luxemburg, Netherlands, New Zealand, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, UK and USA.

In our original analysis we attempted to include all 23 countries (with the omission of one dummy), however this led to estimation issues due to some countries recording low numbers of observations. Therefore following a similar process to Ziegler and Schröder (2010), we categorise the dummy variables for Austria, Belgium, Denmark, Finland, Greece, Hong Kong, Ireland, Italy, Luxemburg, Netherlands, Portugal, Singapore, South Korea (all these countries recorded four or fewer firms) as omitted category. For the remaining countries, we include Australia, Canada, France, Germany, Japan, New Zealand, Spain, Sweden, Switzerland, UK, and USA as dummy variables. The inclusion of the country dummy variables for this latter group represents 94.03 % of our sample, and thus we are able to control for most country effects in our study. Moreover we note the majority of firms are
situated in the UK (104), US (44), and Japan (173),\textsuperscript{45} which combined represent 71.33 % of our sample. Table 13 provides a summary of our country numbers, divided into two lists. Sample 1 (N1) is the full sample as used in our earlier event study, and sample 2 (N2) is the ‘common sample’ based on subsequent regression analysis (less the inclusion of institutional ownership variables). Note all samples are less confounding effects.

\textsuperscript{45} These numbers are based on a ‘common sample’ count of equation one (control variables plus financial constraint variables) less confounding effects.
Table 13: Full sample by country

Country numbers and corresponding percentages divided into two samples. The first sample (N1) is the full sample as used in our earlier event study, and the second sample (N2) – is the ‘common sample’ based on subsequent regression analysis (less the inclusion of institutional ownership variables).

<table>
<thead>
<tr>
<th>Country</th>
<th>N(1)</th>
<th>N(1) %</th>
<th>N(2)</th>
<th>N(2) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>30</td>
<td>4.61</td>
<td>23</td>
<td>5.11</td>
</tr>
<tr>
<td>Austria</td>
<td>1</td>
<td>0.15</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Belgium</td>
<td>3</td>
<td>0.46</td>
<td>1</td>
<td>0.22</td>
</tr>
<tr>
<td>Canada</td>
<td>5</td>
<td>0.77</td>
<td>5</td>
<td>1.11</td>
</tr>
<tr>
<td>Denmark</td>
<td>3</td>
<td>0.46</td>
<td>1</td>
<td>0.22</td>
</tr>
<tr>
<td>Finland</td>
<td>3</td>
<td>0.46</td>
<td>3</td>
<td>0.67</td>
</tr>
<tr>
<td>France</td>
<td>33</td>
<td>5.07</td>
<td>28</td>
<td>6.22</td>
</tr>
<tr>
<td>Germany</td>
<td>15</td>
<td>2.30</td>
<td>13</td>
<td>2.89</td>
</tr>
<tr>
<td>Greece</td>
<td>1</td>
<td>0.15</td>
<td>1</td>
<td>0.22</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>4</td>
<td>0.61</td>
<td>4</td>
<td>0.89</td>
</tr>
<tr>
<td>Ireland</td>
<td>1</td>
<td>0.15</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Italy</td>
<td>6</td>
<td>0.92</td>
<td>4</td>
<td>0.89</td>
</tr>
<tr>
<td>Japan</td>
<td>216</td>
<td>33.18</td>
<td>173</td>
<td>38.44</td>
</tr>
<tr>
<td>Luxemburg</td>
<td>2</td>
<td>0.31</td>
<td>1</td>
<td>0.22</td>
</tr>
<tr>
<td>Netherlands</td>
<td>3</td>
<td>0.46</td>
<td>3</td>
<td>0.67</td>
</tr>
<tr>
<td>New Zealand</td>
<td>7</td>
<td>1.08</td>
<td>6</td>
<td>1.33</td>
</tr>
<tr>
<td>Portugal</td>
<td>4</td>
<td>0.61</td>
<td>4</td>
<td>0.89</td>
</tr>
<tr>
<td>Singapore</td>
<td>6</td>
<td>0.92</td>
<td>3</td>
<td>0.67</td>
</tr>
<tr>
<td>South Korea</td>
<td>4</td>
<td>0.61</td>
<td>2</td>
<td>0.44</td>
</tr>
<tr>
<td>Spain</td>
<td>16</td>
<td>2.46</td>
<td>8</td>
<td>1.78</td>
</tr>
<tr>
<td>Sweden</td>
<td>12</td>
<td>1.84</td>
<td>11</td>
<td>2.44</td>
</tr>
<tr>
<td>Switzerland</td>
<td>9</td>
<td>1.38</td>
<td>8</td>
<td>1.78</td>
</tr>
<tr>
<td>UK</td>
<td>166</td>
<td>25.50</td>
<td>104</td>
<td>23.11</td>
</tr>
<tr>
<td>USA</td>
<td>101</td>
<td>15.51</td>
<td>44</td>
<td>9.78</td>
</tr>
</tbody>
</table>

Total        | 651  | 450    | 100  |
**Time effects**

We include time dummy variables to capture time effects such as changes in market sentiment. Our construction of time dummy variables however is dependent on the specified sample period. For instance, in Equation 1, we use the full sample of firms from 2003 to 2012, and therefore consequently employ all time dummy variables for each required year (with 2012 as the omitted dummy). In Equation 3, since the inclusion of our institutional variables restrict our sample period to March 2008 to March 2012, our time dummy variables will be restricted in a similar way.

### 4.3.4 Construction of equations

Each equation presented in this next section combines different combinations of explanatory, control and fix-effects variables:

#### 4.3.4.1 Equation 1

Equation 1 includes all our explanatory variables (*Size, Leverage, ROE, Asset Turnover, CAPEX, Payout, Cash, and Growth*), but excludes our institutional ownership variables (*Investor Turnover and Δ Institutional Ownership*). In addition, only fix effects for country and year are included in this equation.

\[
CAR = \alpha + \beta_1 Size + \beta_2 Leverage + \beta_3 Payout + \beta_4 Cash + \beta_5 Asset Turnover + \beta_6 ROE
\]

\[
+ \beta_7 Growth + \beta_8 CAPEX + \sum_{k=1}^{10} \delta_k Country + \sum_{t=1}^{9} \gamma_t Year \quad [1]
\]
4.3.4.2 Equation 2

Equation 2 has the same specifications as Equation 1, but in addition includes fix effects for Industry.

\[ CAR = \alpha + \beta_1 \text{Size} + \beta_2 \text{Leverage} + \beta_3 \text{Payout} + \beta_4 \text{Cash} + \beta_5 \text{Asset Turnover} \]
\[ + \beta_6 \text{ROE} + \beta_7 \text{Growth} + \beta_8 \text{CAPEX} + \sum_{k=1}^{10} \delta_k \text{Country} \]
\[ + \sum_{t=1}^{9} \gamma_t \text{Year} + \sum_{j=1}^{10} \partial_j \text{Industry} \] [2]

4.3.4.3 Equation 3

Equation 3 includes all aforementioned explanatory variables, as well as our institutional variables which were initially excluded. This equation however only includes fix effects for country and year, but not industry effects due to restrictions on sample size.\(^{46}\)

\[ CAR = \alpha + \beta_1 \text{Size} + \beta_2 \text{Leverage} + \beta_3 \text{Payout} + \beta_4 \text{Cash} + \beta_5 \text{Asset Turnover} \]
\[ + \beta_6 \text{ROE} + \beta_7 \text{Growth} + \beta_8 \text{CAPEX} + \beta_9 \Delta \text{Insitutional Ownership} \]
\[ + \beta_{10} \text{Investor Turnover} + \sum_{k=1}^{10} \delta_k \text{Country} + \sum_{t=1}^{4} \gamma_t \text{Year} \] [3]

\(^{46}\) Moreover past research has shown large firms undertake more social activities than smaller firms, regardless of industry classification (Krishna, 1992).
4.4 Results

4.4.1 Equations 1, 2 and 3 results

Table 14: Equations 1, 2 and 3 OLS regression results

This table presents the results of Equations 1, 2 and 3 on the 5-DAY CAR surrounding announcement of inclusion in the FTSE4Good Global Index. Equations 1 and 2 cover all firms included in the social index over September 2003 to March 2012, while Equation 3, due to the inclusion of our institutional ownership variables, is restricted to March 2008 to March 2012. To avoid including outliers that may heavily influence our results, all explanatory variables are winsorised at the 2% level. All equations control for country and time-series effects (year) and where appropriate industry effects. CARS are calculated using a market model based on the relevant country index for each firm sourced from MSCI. Complete variable definitions are found in Table 12.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Equation 1</th>
<th>Equation 2</th>
<th>Equation 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-stat</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Constant</td>
<td>0.0003</td>
<td>0.0156</td>
<td>-0.0010</td>
</tr>
<tr>
<td>Size</td>
<td>0.0017</td>
<td>1.1644</td>
<td>0.0017</td>
</tr>
<tr>
<td>Leverage</td>
<td>-0.0141</td>
<td>-1.3348</td>
<td>-0.0176</td>
</tr>
<tr>
<td>Payout</td>
<td>-0.0016</td>
<td>-2.0730**</td>
<td>-0.0016</td>
</tr>
<tr>
<td>Cash</td>
<td>-0.0328</td>
<td>-1.8992*</td>
<td>-0.0332</td>
</tr>
<tr>
<td>Asset Turnover</td>
<td>-0.0019</td>
<td>-0.5761</td>
<td>-0.0003</td>
</tr>
<tr>
<td>ROE</td>
<td>0.0003</td>
<td>2.3584**</td>
<td>0.0003</td>
</tr>
<tr>
<td>Growth</td>
<td>-0.0201</td>
<td>-1.9200*</td>
<td>-0.0236</td>
</tr>
<tr>
<td>Capex</td>
<td>-0.1252</td>
<td>-1.9128*</td>
<td>-0.0893</td>
</tr>
<tr>
<td>Δ Insti. Ownership</td>
<td>0.0390</td>
<td>2.0238**</td>
<td></td>
</tr>
<tr>
<td>Investor Turnover</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Country-fixed effects | Yes | Yes | Yes |
Time-fixed effects    | Yes | Yes | Yes |
Industry-fixed effects| No  | Yes | No  |
N                      | 450 | 450 | 96  |
F-statistic            | 2.543*** | 2.232*** | 1.888** |
Adj. R²                | 0.082 | 0.087 | 0.177 |

*Significant at the 10% level **Significant at the 5% level ***Significant at the 1% level
The results presented in this section are robust for country and time-series effects, and where appropriate industry effects (for Equation 2 only). In addition, the t-statistic for all equations presented is statistically significant – thus indicating all models and their collective variables are appropriate in explaining the cross-sectional determinants of CAR.

We note only two studies (to the best of our knowledge) use firm-specific variables to explain sources of abnormal returns related to the ‘social index effect’: Clacher and Hagendorff (2012), who employ size (natural logarithm of total assets), return on equity, leverage, employee productivity (EBIT/number of employees), and ‘visible’ (the number of times the firm is mentioned in press); and Doh et al. (2010) who employ sales growth (which we use as a reference for our asset growth variable) and size (the natural logarithm of the market value of equity). We quote these studies and note comparisons to specific variables where appropriate.

We find lower abnormal returns are significantly related to our lagged measures of financial constraint. In particular, we find that firms characterised by high prior dividend payments (Payout), high prior cash holdings (Cash), and high prior capital intensity (CAPEX) have greater associations with lower CAR. These results are reviewed in turn.

Firm dividend payout is found to be negative and significant for market reaction to social index inclusion. In other words, we find firms with high dividend payout have greater associations with lower market reactions. According to Equation 1, a 1 % increase in dividend payout is associated with an estimated 0.2 % decrease in abnormal returns.47

47 The coefficient of our continuous (but unlogged) explanatory variable shows the estimated percentage effect (after multiplying by 100) of a one-unit change in the explanatory variable.
This is consistent with the view that investors care about dividend yields, as CSR can be perceived as a subtraction from future dividend income. Indeed corporate managers are more willing to increase dividends than decrease dividends, as the latter decision can provide negative signals about the future prospects of the firm (Lintner, 1956). In addition, as our coefficient for this variable is negative in sign, we provide results consistent with the notion that high-dividend firms (traditionally considered less financially constrained) represent greater financial constraints (as per Kaplan and Zingales, 1997; Cleary, 1999; Kadapakkam et al., 1998). Thus like Surroca and Tribó (2009) we find firms with high-dividend polices to impede the successful engagement of CSR (as proxy by the greater association with lower CAR values).

High cash holdings are found to be negative and significant in relation to market reaction. According to Equation 1, a 1% increase in cash holdings is associated with an estimated 3.3% decrease in abnormal returns. As past studies show, high cash holdings can indicate firms have either costly external financing (Dittmar et al., 2003), higher commitments to investment expenditure (for example, R&D expenses), greater investment opportunities, more volatile cash flows (Opler et al., 1999), or simply higher financial constraints (Almeida et al., 2002); thus announcements of CSR expenditure given indications of stress to financial positions, or investment opportunities have resulted – perhaps unsurprisingly – in negative market reactions.\(^{48}\)

\(^{48}\) Note, despite having the correct sign, our cash variable in Equation 3 is statistically insignificant. As Equation 3 is considerably smaller in sample size to both Equations 1 and 2 (450 versus 96), we believe differences in our cash coefficient are mostly due to a sample size issue.
Our last measure of financial constraint is CAPEX intensity. We find CAPEX to be significant and negatively associated with market reaction. According to Equation 1, a 1% increase in capital expenditure is associated with an estimated 12.5% decrease in abnormal returns. The magnitude and direction of the CAPEX coefficient is consistent with our original hypothesis.

That is as the resources required for capital expenditure can be substantial – for example, in 2012, firms in the US were found to spend about 7.2% of their annual revenue to capital expenditure (Fitch Ratings, 2013) – announcements of social index inclusion can be perceived as inappropriate due to the higher financial constraints faced by these firms (Korajczyk and Levy, 2003). Thus CAPEX intensity can limit the scope for other opportunities of investment (Datta et al., 2005; Ghemawat, 1991; Rajagopalan and Finkelstein, 1992) – including the possible range of CSR activities. Moreover, negative market reactions can indicate the perception that valuable resources are being diverted from future capital expenditure. Extending the findings of McConnell and Muscarella (1985), announcements of social index inclusion can become a precursor to future announcements of capital expenditure decreases, and therefore associated with significant and negative market reactions. This association is indeed possible, given the recent findings of Hung and Wang (2014) that show negative market reactions to mandatory CSR reporting in China. Moreover, they find lower capital expenditure post mandate, consistent with higher imposed costs and burden on operations.

Our next set of discussions concern the results of our control variables relating to size, leverage, profitability and asset growth. Our measures of size and leverage are found in all regressions to be insignificant; profitability is significant across all three regressions (interchanging between ROE and asset turnover), while asset growth is significant and
negative across most regressions. In the following paragraphs, we examine in detail the results of each control variable in turn.

We find firm size is insignificant in explaining abnormal returns related to announcements of CSR inclusion. Our result thus is in contrast to studies by Clacher and Hagendorff (2012) and Doh et al. (2010), who find firm size to be significant and positive. The lack of significance found in this variable may be due to the diminishing marginal influence of firm size. For instance, size as a positive increasing attribute can become less prominent after surpassing a certain level of size.

As our sample of firms is larger on average compared with previous aforementioned studies (9.53 versus 8.496 [Doh et al., 2010] based on the natural logarithm of market value, and 16.86 versus 13.293 [Clacher and Hagendorff, 2012] based on the natural logarithm of total assets), it is possible to find the influence of firm size in our sample is less important. Interestingly in relation to our measures of financial constraint, like previous scholars, we find that while size has no significant relationship in our investigation, the relationship between available resources and CSR continues to be consistently significant (for example, Judge and Douglas, 1998; Waddock and Graves, 1997).

We find our measure of corporate leverage is insignificant. This outcome is possible if announcements of social index inclusion are perceived on average to not affect the firm’s ability to service their debt commitments – despite their newfound signal of additional

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49 With the exception of our growth variable which lost its significance in Equation 3.

50 These figures are based on Equation 1. Similar figures are also reported for Equation 3 (9.301 versus 8.496 – natural logarithm of market value and 16.663 versus 13.293 – natural logarithm of total assets).
expenses related to CSR (that is, announcement of social index inclusion). Moreover, according to the slack resource theory, funds directed to CSR can only be considered ‘slack’ once all operational commitments are met – commitments that of course must include debt obligations.\(^5\) Nevertheless, our measure of corporate leverage is in contrast to Clacher and Hagendorff (2012), who find leverage to be significant and negative to market reaction to social index inclusion.

In contrast, the remaining control variables of profitability and asset growth are found to be mostly significant in their coefficients.

Firm profitability is found to be significant and positive; significant for return on equity in Equation 1 and 2, and significant for asset turnover in Equation 3. This result is thus consistent with the notion wealthier firms have greater abilities to engage in CSR (Ullmann, 1985; McGuire et al., 1988; Adams and Hardwick, 1998) – and thus are able to enact higher positive market reactions. Notably while our results are consistent with Clacher and Hagendorff (2012) in direction, our results in contrast (in particular in return on equity) is statistically significant.

Further, although our study cannot distinguish the direction of causality\(^5\) – that is, do companies that are more profitable engage in CSP, or do companies that engage in CSP become more profitable? – we argue that perhaps CSP and CFP mutually affect each other

\(^5\) In the event of liquidation debt holders have first claim on any proceeds, while equity holders’ claims are residual. That is, equity holders only receive capital in excess of the claims by the debt holders.

\(^5\) Note: although we use lagged measures of financial performance to CSP announcement, it is likely these firms have been actively engaging in sustainable practices for a period of time before announcement of social index inclusion. Therefore whether financial performance preceded or followed as a consequence CSP activities is difficult to determine.
through a virtuous cycle. As Orlitzky et al. (2003) put it: “financially successful companies spend more because they can afford it, but CSP also helps them become a bit more successful” (Orlitzky et al., 2003). Thus our results can also be considered consistent with Roberts (1992) who states “... the better the economic performance of a company, the greater its social responsibility activity and disclosures”. On the other hand, Alexander and Buchholz (1978) argue firms that engage in CSR are better run relative to their counterparts that choose not to engage in CSR.

Our estimate of firm growth proxied by the three-year growth in total assets is significant and negative (with exception to equation 3). This indicates in other words that firms with slower growth have greater associations with higher market reactions. This is consistent with the notion that investment in CSR is expected to be found in more established and mature industries (McWilliams et al., 2006) due to the greater need for product differentiation (see for example, Anderson and Zeithaml, 1984; Chih et al., 2010; Fernández-Kranz and Santaló, 2010), and the stricter focus on achieving stability, growth and efficiency (Grojean et al., 2004). Moreover as growth slows, and firms begin to depart further from their embryonic stages, there is likely a greater need for product differentiation (McWilliams and Siegel, 2001). Thus from an organisational lifecycle perspective, CSR engagement can be considered more appropriate for firms in a slow-growth stage of the lifecycle. Indeed the introduction of socially responsible activities will most likely occur when environmental conditions are stable (Dickson et al., 2001).

Moreover, as high-growth firms tend to reinvest profits in expansion or acquisition (Penrose, 1995), or to other endeavours such as capital expenditure and research and development, announcements of social index inclusion can be perceived to impede these traditionally ‘high
growth’ activities. Further, if we consider CSR as a value-destroying exercise, then our results are consistent with Basu (1977) and Dreman and Berry (1995) who find high-growth firms tend to experience more pronounced market reactions to negative earnings surprises. Note, despite the interpretation of our coefficient, we provide results in contrast to Clacher and Hagendorff (2012), who find significant and positive effects instead, but do not offer an interpretation of this effect.

In the next section we examine the mediating role of institutional ownership. In particular, we review the results of our variables $\Delta$ institutional ownership and investor turnover. First, based on a comparison of quarterly institutional ownership surrounding the CSR event, we find lower abnormal returns are significantly related to decreases in institutional ownership. According to Equation 3, a 1 % decrease in institutional ownership will lead to an estimated 3.5 % decrease in abnormal returns.

Our results thus indicate institutional investors (on the selling side) view CSR engagement as a value-destroying exercise and therefore a “wasteful discretionary act of management” (Brammer and Pavelin, 2006). Moreover, if engaging in CSR requires an immediate reduction to cash flows, but does not necessarily translate to the same risk reductions (either risk reductions are not high enough to offset the fall in cash flows or alternatively the impact to risk is unknown or unobservable) risk-averse institutional investors will be expected to sell down the stock.53

53 Moreover, in additional analysis (not presented) we find 15 per cent of our sample experiences significant changes in beta. Of these, 54.62 per cent experience a significant increase in risk, while 45.53 per cent experience a significant decrease in risk. We use a chow test and compare each firm beta in the estimation period (–260, –12) to the beta calculated in the event period (0, 30).
Out last institutional ownership variable is *investor turnover*. We find lower market reactions are significantly related to firms characterised by high investor turnover. As firms with high investor turnover are indicative of institutional investors who tend to buy and sell their investments more frequently due to their greater focus on short-term goals, our result is consistent with institutional myopic behavior. This is particularly pronounced when we consider many social initiatives require an immediate reduction in cash flows, while their future financial benefits can remain unknown until the longer term (Coffey and Fryxell, 1991; Klein and Zur, 2009). Indeed managers cite high costs, long payback periods, and uncertainty in outcomes as factors that prevent them from engaging in CSR (Christie et al., 1995; Zhuang and Synodinos, 1997). Certainly under this scenario, CSR engagement is likely to impact short-term earnings in a negative rather than positive way. Thus as CSR activities may not perfectly align with the short-term goals of their myopic institutional investors, firms characterised by high investor turnover are on average associated with lower market reactions to the CSR event.

### 4.5 Robustness

In this section of the thesis we address the often ignored or ‘passed on’ problem regarding endogeneity in the CSR literature. Specifically, we determine whether firms found to be adopting CSR practices – all else being equal – are influencing the investment decisions of their institutional investor.

Indeed the results from Chapters 3 and 4 are consistent with this proposition. From our event study (Chapter 3), we find negative abnormal returns are associated with announcements of inclusion to the FTSE4Good Global Index. As market reactions are largely based on the trading decisions of institutional investors (given they are the largest investor group in the
market), sources of negative abnormal returns can reasonably be attributed to this trading behavior. Moreover, in cross-sectional analysis (section 4.4.1), we find evidence supporting this proposition: negative abnormal returns are found to be significantly associated with lower institutional ownership post announcement.

From this current and previous chapter, our results seem to indicate firms that adopt CSR practices do indeed influence the investment decisions of institutional investors. However, for this proposition to be accurate, one very important assumption is been made – announcements of FTSE4Good inclusion is an exogenous firm-specific attribute hypothesised to affect institutional ownership.

That being said, there is every reason to believe CSR inclusion is in fact endogenously determined by many of the same firm-specific features that affect changes in institutional ownership. For instance, institutional movements could simply reflect the regular decisions of balancing portfolios, or alternatively other events unrelated to CSR. Therefore a fundamental evaluation problem arises, through a question of causality – whether changes in institutional ownership are a direct consequence of CSR inclusion, or are in fact determined by some other endogenous variable.

Thus, the crux of this section is to determine whether differences between movements in institutional ownership with the CSR effect (the treatment group) and without the CSR effect (the control group), can be attributed to a CSR factor. As we cannot practically observe both the treated and untreated outcome for the same individual at the same time, and taking the mean outcome of non-participants is problematic as this group can often differ in many ways, we use propensity score matching as one possible solution.
The basic premise is to find in a large group of non-participants, firms that are similar in all relevant pre-treatment characteristics. That is to say, each firm characteristic in the treatment group is mirrored by an observation in the control group. Once an adequate control group is formed, differences in the outcomes of each matched pair will be due to the ‘treatment effect’, and consequently not to observable differences between the pairs. In other words, differences in changes to institutional ownership can be attributed to the unique contribution of the announcement effect of the FTSE4Good Global Index.

The methodology behind this matching outcome relies on two important underlying assumptions. The first, confoundedness, assumes that given a set of observable covariates $X$, the outcomes of both the treated and control group are independent of the treated effect. The second, overlap, assumes that participants with the same $X$ values have a positive probability of being both participants and nonparticipants (Heckman et al., 1999). For the rest of this chapter we implicitly assume both these assumptions hold.

4.5.1 Propensity score matching (PSM) analysis

We implement a propensity score matching methodology to construct a group of control firms that resemble as closely as possible our group of CSR firms (the treatment group) – defined as firms announced for inclusion to the FTSE4Good Global Index. Further, we restrict our analysis in this section to only US firms and a sample period from March 2008 to March 2012 (as periods earlier do not offer consistency in ownership data). Based on the aforementioned specifications and adjusting for available covariate variables (as discussed in the next paragraph) our sample size for the treatment group is 56 firms. Please refer to Appendix 2: Flow Chart 2 for a summary of the steps to arrive at this final sample size. To
construct our non-CSR group (the control group) we source a random sample of 5000 US firms to represent our pool of unmatched firms.

To estimate the propensity score we employ a logit regression as follows:

\[ \Pr(D_{CSR} = 1) = F(\beta'X) \]

Where \( D_{CSR} \) is a dummy variable equal to 1 if the firm is a CSR firm and 0 otherwise, \( F(\cdot) \) is the cumulative probability density function of normal distribution, \( \beta \) is a vector of marginal impact coefficients and \( X \) is the vector representing our covariate variables.

We use covariate variables of firm characteristics that have been well established in the literature as important to CSR (see for example: Shen and Chang, 2009; Ziegler and Schröder, 2010; Clacher and Hagendorff, 2012; Eccles et al., 2013). The covariate variables employed are Size (natural logarithm of total asset), ROA (operating income over total assets), Leverage (total liability over total asset), MTB (market value of equity over book value to equity), and Asset Turnover (sales over total assets). The variables respectively represent our proxies for size, income, capital structure (or financial risk), growth opportunity and management ability. Without replacement, we perform an exact match on industry classification, followed by year of event, then lastly a partial match on propensity scores based on the closest neighbor matching principal.

As we match 53 CSR firms based on a large pool of 5000 unmatched firms, the nearest neighbor approach was appropriately suitable in achieving very close matches.
### 4.5.2 Propensity score results

**Table 15: Estimation of propensity score**

Binary logit regression, $\Pr(D_{CSR} = 1) = F(\beta'X)$

MTB is defined as market value of equity over book value to equity. ROA is defined as net income over total assets. For all remaining variables, complete variable definitions are found in Table 12. The binary logit regression is restricted to only US firms and a sample period from 2008–2012. We restrict the time period to 2008–2012, as institutional data before 2008 are not consistently available. The Z-statics are shown alongside their level of significance.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimated coefficient</th>
<th>z-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>–9.3612</td>
<td>(–6.1644)***</td>
</tr>
<tr>
<td>Size</td>
<td>0.6935</td>
<td>(3.3841)***</td>
</tr>
<tr>
<td>ROA</td>
<td>2.8054</td>
<td>(1.8135)*</td>
</tr>
<tr>
<td>Leverage</td>
<td>–1.7338</td>
<td>(–3.1693)***</td>
</tr>
<tr>
<td>MTB</td>
<td>0.0020</td>
<td>(0.3601)</td>
</tr>
<tr>
<td>Asset Turnover</td>
<td>0.0626</td>
<td>(0.3156)</td>
</tr>
<tr>
<td>No. of observation</td>
<td>4471</td>
<td></td>
</tr>
<tr>
<td>McFadden R-squared</td>
<td>0.0403</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 10% level, **significant at the 5% level, ***significant at the 1% level

Table 15 shows the binary logit result of the first stage of the PSM analysis – estimating propensity scores to perform firm matches and create our control group. Of the five covariates shown to be important in the CSR literature, we find three of these show statistical significance in explaining the probability (or propensity) of firm inclusion to the FTSE4Good Global Index. Large firms, low leverage (both significant at the 1% level), as well as high profitability (significant at the 5% level) are found to be important in determining the propensity of social index inclusion. In addition, all five signs of our covariates, including those that are insignificant, are consistent with previous studies. For instance, positive correlations are related to size (Clacher and Hagendorff, 2012; Shen and Chang, 2009; Eccles et al., 2013), ROA (Ziegler and Schröder, 2010), MTB (Eccles et al., 2013), and asset
turnover (Eccles et al., 2013; Shen and Chang, 2009), while a negative correlation was reported for leverage (Clacher and Hagendorff, 2012; Ziegler and Schröder, 2010).

As previously mentioned, the objective of the PSM methodology is to construct a group of non-CSR firms (using propensity scores and other matching criteria) that resemble as closely as possible our group of CSR firms (the treatment group). We match 53 CSR firms based on a large pool of 5000 unmatched firms.

After the matching process is accomplished (that is, match based on exact industry, year, and partial match on propensity score), we present a summary of the basic statistics between the CSR group and its matched non-CSR group in Table 16.

Table 16: Basic statistics of CSR-firms and non-CSR firms

MTB is defined as market value of equity over book value to equity. ROA is defined as net income over total assets. See table 12 (chapter four) for all remaining variable definitions.

<table>
<thead>
<tr>
<th>Variables</th>
<th>CSR firms (n = 53)</th>
<th>Non-CSR firms (n = 53)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Size</td>
<td>7.039</td>
<td>0.700</td>
</tr>
<tr>
<td>ROA</td>
<td>0.082</td>
<td>0.078</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.008</td>
<td>0.287</td>
</tr>
<tr>
<td>MTB</td>
<td>4.037</td>
<td>4.784</td>
</tr>
<tr>
<td>Asset Turnover</td>
<td>0.859</td>
<td>0.917</td>
</tr>
</tbody>
</table>

4.5.3 Verification of matching results

We verify our matching process by comparing the average characteristic of each covariate variable between the CSR group (treatment group) and its matched group (control group or non-CSR firms). We employ a test of the difference of the means between our two groups vis-à-vis total assets, ROA, leverage, MTB and asset turnover. If there are no significant
differences in means between each covariate across each group, we can conclude the treatment group and control group are statistically identical according to industry, year, size, income, capital structure, growth opportunities and management ability.

From Table 17, it can be observed that the CSR group have on average total assets of 7.039 (natural logarithm), 0.082 ROA, 0.008 leverage, 4.037 MTB, and 0.859 asset turnover. Similarly the matched non-CSR group were found to have on average total assets of 7.033 (natural logarithm), 0.071 ROA, –0.008 leverage, 0.568 MTB, and 0.855 asset turnover. Testing the differences of the averages between both groups reveals no significant differences. As our two groups are statistically identical according to industry, year, size, profitability, capital structure, manager ability and growth opportunities, we conclude our matching process is successful.

Table 17: Results of verifying the matching process

Displays the average figure for each covariate variable for each group, and the results of a test of the difference between these variables. Matching was achieved via the closest neighbor principal approach. See Table 12 for complete variable definitions.

<table>
<thead>
<tr>
<th>Covariates variables</th>
<th>CSR-firms (treatment group)</th>
<th>Non-CSR firms (control group)</th>
<th>Test of difference (t-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>7.039</td>
<td>7.033</td>
<td>–0.037</td>
</tr>
<tr>
<td>ROA</td>
<td>0.082</td>
<td>0.071</td>
<td>–0.759</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.008</td>
<td>–0.008</td>
<td>–0.294</td>
</tr>
<tr>
<td>MTB</td>
<td>4.037</td>
<td>5.514</td>
<td>0.568</td>
</tr>
<tr>
<td>Asset Turnover</td>
<td>0.859</td>
<td>0.855</td>
<td>–0.020</td>
</tr>
</tbody>
</table>

* Significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level
As our treatment group and control group are found to be statistically identical according to our covariate variables, anticipated differences in changes to institutional ownership between our two groups can be attributed to the treatment effect, all else being equal.

4.5.4 Treatment effect results

We implement two approaches to determine whether institutional changes are affected by announcement of firm inclusion in the FTSE4Good Global Index. The first compares the mean differences in changes to institutional ownership between the treatment and control group. In this, both a test of the average and test of the median are performed.

The second approach employs cross-sectional regression analysis with a CSR dummy to examine differences in changes to institutional ownership between the treatment and control group. This regression equation is as follows.

4.5.4.1 Equation 4

\[
\Delta \text{Institutional Ownership} = \alpha + \beta_1 \text{Size} + \beta_2 \text{ROA} + \beta_3 \text{Leverage} + \beta_4 \text{MTB} + \lambda D_{CSR} + \epsilon
\]  

Where \( \Delta \text{Institutional Ownership} \) is defined as post quarterly institutional holdings less current quarterly institutional holdings (thus a negative value would indicate institutional selling), \( \beta \) represents our control variables (size, ROA, leverage and MTB respectively), \( \lambda \) is the coefficient of the CSR dummy variable, and lastly \( \epsilon \) is the error term.

Note: A significant negative \( \lambda \) suggests the treatment effect (that is, announcement of CSR inclusion) is significantly associated with lower institutional ownership (that is, institutional owners are selling).
The results of both analysis are presented respectively in Table 18 and Table 19.

### 4.5.5 Test of equality

**Table 18: Test of equality of average and median – changes in institutional ownership between treatment and control group**

Panel A: change in institutional ownership is defined as the difference between post and current quarterly institutional holdings surrounding the announcement event. Panel B: change in institutional ownership when we partition the treatment group into only those whom experienced an initial negative CAR to the announcement event. For both panels, the average change in institutional ownership are shown for each group, alongside with their appropriate t-statistic (to test the average) and z-statistic (to test the median). The p-value is presented in parentheses.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Average (treat group)</th>
<th>Average (control group)</th>
<th>t-statistic of difference (average)</th>
<th>Z-statistic of difference (median)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Change in institutional ownership</td>
<td>-0.0175</td>
<td>0.0232</td>
<td>2.3436** (0.0212)</td>
<td>(0.0887)</td>
</tr>
<tr>
<td>B Change in institutional ownership – subset: negative CAR</td>
<td>-0.0283</td>
<td>0.0170</td>
<td>1.8197* (0.0741)</td>
<td>(0.0975)*</td>
</tr>
</tbody>
</table>

* Significant at the 10% level, **significant at the 5% level, ***significant at the 1% level

Based on Table 18, we report average institutional changes for the treatment group are negative 1.75 %. In other words, institutional investors are on average decreasing their shareholdings surrounding announcement of social index inclusion by about 1.75 %.

The non-CSR group, which operates in the same year and industry, and which exhibit statistically identical size, profitability, capital structure, and growth opportunities, shows in contrast an average positive increase in institutional ownership of about 2.32 %. A test of the equivalence reveals differences in the changes in institutional ownership between both groups
to be significant at the 5% level based on average changes, and at less than the 10% level based on median changes.

Moreover, when we partition the treatment group into only those that experienced a negative market reaction (as opposed to the full sample comprising a mix of negative and positive market reactions to the CSR event), we find similar results, albeit at lower levels of significance. The partitioned treatment group experiences on average decreases in institutional ownership of about 2.83% (a figure larger than the CSR full sample as expected), while its matched control group experiences a contrasting increase in institutional ownership of about 1.7%. Similarly a test of the equivalence reveals differences to be significant at the 10% level for both average and median changes.

4.5.6 Institutional ownership regression analysis results

Table 19: Results of institutional ownership regression – Equation 4

OLS method:

$$\Delta Institutional\ Ownership = \alpha + \beta_1 Size + \beta_2 ROA + \beta_3 Leverage + \beta_4 MTB + \beta_5 D_{CSR}$$

Full variables definitions are found in Table 12. We use pooled estimation without considering fixed and random effects. T-statistics for each covariate are presented.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimated coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>–0.0170</td>
<td>–0.1673</td>
</tr>
<tr>
<td>Size</td>
<td>0.0041</td>
<td>0.2979</td>
</tr>
<tr>
<td>ROA</td>
<td>0.1884</td>
<td>1.2629</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.0176</td>
<td>0.4394</td>
</tr>
<tr>
<td>MTB</td>
<td>–0.0002</td>
<td>–0.2581</td>
</tr>
<tr>
<td>$D_{CSR}$</td>
<td>–0.0435</td>
<td>–2.4389**</td>
</tr>
<tr>
<td>No. of observation</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>R-square</td>
<td>0.0694</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 10% level, **significant at the 5% level, *** significant at the 1% level
Table 19 presents the results of employing regression analysis with a CSR dummy to examine the impact of the treatment effect (that is, the CSR factor) to changes in institutional ownership between our two groups. Further, we add control variables size, ROA, leverage, and MTB to proxy respectively for scale, profitability, capital structure and growth.

Our results show $D_{CSR}$ is significant and negatively associated with lower institutional ownership. The estimated coefficient of $D_{CSR}$ is negative 2.43, implying the treatment effect (that is, the CSR factor) reduces institutional ownership by about 2.43% on average. This is significant at the 5% level.

Together the results presented in Table 18 and Table 19 confirm the underlying hypothesis for this section. Institutional shareholders, all else being equal, will decrease their shareholdings in a firm upon announcement of its inclusion in the FTSE4Good Global Index. In other words, we find institutional shareholders are punishing firms shown to be adhering to CSR.

Our empirical results are thus consistent with Coffey and Fryxell (1991) and Barnea and Rubin (2010) who find institutional ownership is negatively related to CSR. Our results however are not in accordance with Graves and Waddock (1994) and Mahoney and Roberts (2007) who find institutional owners are indifferent to these activities, that is, firms engaging in CSR are no less attractive to institutional investors.

Thus while we provide results inconsistent with some previous findings, we note the following key differences in our study to explain this inconsistency: (1) we directly measure transient changes in quarterly institutional ownership surrounding the CSR event (where previous studies have used only one-point-in-time measures of institutional ownership – often yearly); (2) we empirically define differences in institutional investment horizons (where
previous studies have used labels or assumptions); and (3) we address the endogeneity issue between institutional ownership and CSR (where previous studies have either ignored this issue, or end with a call to investigate further). Due to these key differences in our study, our findings can be considered to provide greater breadth and robustness compared with the previous literature – be it consistent or inconsistent with our reported findings.

Moreover, to the best of our knowledge, matching methods, particularly the use of propensity score matching (PSM), have only been employed once in the CSR literature.54 This study by Shen and Chang (2009) finds, all else being equal, Taiwanese firms that engage in CSR tend to obtain higher values on pre-tax income to net sales and profit margin. As this study differs both in sample and methodology, as well as the analysis of treatment effect (changes in quarterly institutional ownership versus measures of annual accounting performance), our study and the use of PSM can nevertheless still be considered unique in its conclusions.

4.6 Discussion and conclusion

The main goal of this chapter is to explain sources of abnormal returns related to the market reaction of announcements of inclusion to the FTSE4Good Global Index. In this chapter, we hypothesised abnormal returns are contingent on prior measures of financial constraint and the influences related to their institutional investors – principally movements in trading activity (overall buying or selling), and their willingness to hold long-term stock.

Thus drawing upon the body of literature regarding slack resource theory and institutional trading behaviour, this chapter sought to resolve the ambiguity in previous findings by using

54 As well as the Shen and Chang (2009) study, we find Eccles et al. (2013) to also use the PSM methodology, however this paper is still yet unpublished.
variables not yet considered in the short-term CSR literature before. First, we improve on previous studies’ attempts to explain abnormal returns by employing measures of financial constraint outside the more generally used proxies of financial slack (such as ROA, ROE and sales), and thus our study has greater abilities to capture the discretionary nature of this measure. Second, we employ two dimensions of institutional ownership better able to capture the intricate effect of this important mediating factor. We measure changes in institutional ownership as close as possible to the CSR event using quarterly data; and we consider institutional myopic behaviour, via an empirical measure of their institutional investment horizon.

Using these variables of financial constraint and institutional ownership (as well as our set of control variables), we explain sources of abnormal returns related to Chapter 3. The findings from our cross-sectional analysis reveal low abnormal returns are significantly associated with the following firm-level characteristics: firms with high dividend payments, as CSR may impose additional risk to future income (Surroca and Tribó, 2009); firms with high cash holdings, as CSR may be inappropriate to firms with costly external financing (Dittmar et al., 2003), volatile cash flows (Opler et al., 1999) or greater financial constraints (Almeida et al., 2002); firms with high capital expenditure, as these firms tend to have high fix costs and rigidity in organisations (Ghemawat, 1991) and greater limitations on managerial discretion (Finkelstein and Boyd, 1998)\textsuperscript{55}; firms with low profitability, as the economic success of CSR

\textsuperscript{55} In particular McConnell and Muscarella (1985) find announcements of decreases in capital expenditures lead to significant negative stock returns for industrial firms. While they do not link decreases in capital expenditure to CSR expenses, in principle (and according to our findings) this extension is possible. Similarly, while there are no studies directly linking high cash holdings to CSR, we argue due to the inherent characteristic of this variable (for example, volatile cash flows, high financial constraints), the extension to CSR and subsequent market reaction in principle is possible.
activities is contingent on abilities (managerial, financial or other) characteristic of wealthier firms (Roberts, 1992); and firms with high asset growth, as CSR may impede firms that tend to reinvest profits through expansion or acquisition (Penrose, 1995).

We then examine the mediating role of institutional ownership. Our analysis reveals low abnormal returns are significantly associated with institutional selling and significantly related to high investor turnover. Particularly in relation to the latter result, we provide evidence of the existence of short-term or myopic institutional behaviour.

While our results so far are consistent with the proposition that institutional investors punish firms found to engage in CSR, there is every reason to believe CSR inclusion is in fact endogenously determined by many of the same firm-specific features that affect changes to institutional ownership. Thus we control for the endogeneity problem inherent in our study by employing propensity score matching (PSM). Our analysis finds institutional owners – all else being equal – are punishing firms included in the FTSE4Good Global Index.

If we consider announcements of inclusion to the FTSE4Good Global Index to be an appropriate indicator of CSP, our results thus suggest institutional ownership plays an important role. However, while our study provides evidence consistent with the underlying literature regarding institutional price pressures, we still do not understand clearly the sources of this positive correlation. For instance, movements in institutional ownership may be a consequence of momentum trading (or positive feedback trading), forecasting abilities, or contemporaneous price pressures. Therefore despite the evidence of the important moderating
influence of institutional myopic behavior, this trading outcome cannot (under the scope of this thesis) be attributed to any of the aforementioned trading behaviors.

Moreover, while we provide evidence consistent with the value-destroying hypothesis, our analysis is inherently limited to only a short-term perspective. It is quite possible for CSR activities to generate many value-enhancing benefits (for example, higher reputation and brand loyalty, greater employee morale and productivity etc.), however as our results imply, these are (1) only obtainable in the long term, and thus not relevant for short-term holders, or (2) even if these benefits do exists, our short term results imply the market perceives the costs of these activities to outweigh their long-term benefits. Thus one of the limitations of our study is the exclusive focus on only the short-term effects. Definitive conclusions regarding the long-term outcome of CSR, however, will require a longer-term analysis.

Finally, despite the negative conclusions of this chapter regarding CSR, it is clear some firms will nevertheless continue to apportion a significant amount of their capital budget to CSR activities. Consequently, we argue an underlying strategic motive must exist, allowing firms to generate important economic value from CSR. In fact, as López et al. (2007) argue: “for CSR policies to endure, they should be strategic … [and only then] will they enable the management and control of inherent risks and achieve lasting positive consequences”. Thus in our next chapter, we ask, ‘Who does well by doing good?’, and hypothesise that industry sensitivity to the individual consumer is an important mediating factor.
Chapter 5: The strategic motivations of CSR across industries
5.0 Introduction

After more than 40 years of research and numerous meta-analyses, an overall positive relationship is said to exist between CSP and CFP (Orlitzky et al., 2003; Margolis et al., 2009; Peloza, 2009). While these studies have provided invaluable insights to the relationship between CSP and financial performance, at least from a practical and normative perspective important issues still remain. For instance, Margolis et al. (2009) state “it is time to consider systematically the normative grounds that, respectively, prohibit, permit, and sometimes even require companies to engage in CSP”. Before such an analysis can occur, however, we need to establish a prerequisite understanding of the mediation process underlying the CSP–CFP relationship. Understanding the mediation effects will allow firms to proactively manage the CSR process and provide an opportunity to adjust their strategy and inputs as required (Peloza, 2009). Only then can firms accurately evaluate the CSR effects and decide how to optimally apply this relationship on a normative or practical perspective. This prerequisite, according to the academic studies so far, is lacking. For instance, only 13 of the 131 articles analysed among the 17 journals evaluated in content analysis was found to examine the mediation effects (Aguinis and Glavas, 2012). Consequently, this knowledge gap in the literature can limit the practical applications of academic work and leave the question of causality unaddressed (Peloza, 2009).

In this chapter, we address one such knowledge gap – in that, while managers believe CSR may be beneficial to financial performance, the academic literature has provided little guidance to managers on how and what conditions can social activities achieve this intended goal. This understanding is particularly lacking across differences in industry contexts, and consequently of the mechanisms that may allow CSR to best align with the unique
characteristics afforded to each industry (Barnett, 2007; Godfrey and Hatch, 2007; Hoepner et al., 2010). Thus its unsurprising to observe, as one meta-analysis reviewer notes, “managers have been left to fend for themselves when it comes to tracking financial impacts from their own CSP” (Peloza, 2009).

Moreover, analysis of differences in industry contexts is particularly motivating, as it provides an opportunity to test the implicit assumption that the CSP–CFP relationship is homogenous across industries (Hoepner et al., 2010). This is despite numerous calls of a potential heterogeneity effect across industries (Barnett, 2007; Godfrey and Hatch, 2007; Hart, 1995), and relatively unsurprising given that even accounting-based measures of financial performance are inept over multiple-industry evaluations (Davidson and Worrel, 1988).56 Heterogeneity across industries can be characterised by a number of unique pressures, that can create a ‘specialisation’ of social interest (Holmes, 1977; Ingram, 1978), such as government regulations, consumer orientation, public visibility, patterns of stakeholder behaviour, and differences in environmental concerns (Arlow and Gannon, 1982; Griffin and Mahon, 1997). As the overwhelming number of studies have only assessed CSP value based on cross-industry analysis – with 77% of studies reported to be this way (Peloza, 2009) – any industry-specific mechanism underlying the CSP-CFP relationship has been assumed to remain constant, without further justification or enquiry (Griffin and Mahon, 1997).

In addition, multiple industry analysis that attempts to apply one type of relationship between CSP and financial performance fail to recognise the contextual nature of the CSR construct, a failing emphasized despite the literatures varying definitions of CSR (see Dahlsrud, 2008).

56 Due mainly to differences in regulations, life cycles, and accounting procedures (Davidson and Worrel, 1988).
study of 37 definitions). For instance, low emission initiatives by the energy sector or community involvement programs by the consumer and finance industry, are all expected to yield the same effects on financial performance, simply because these activities are classified as CSR. Thus multiple industry analyses can confound relationships between CSR and CFP that are unique to each industry context (Griffin and Mahon, 1997; Simpson and Kohers, 2002). Therefore similarly to Hoepner et al. (2010) we see “no theoretical reason to justify the a priori assumption that there is one type of relationship between CSP and CFP across industries and other analytical contexts.” (pg. 6).

Furthermore, while previous studies have controlled for ‘industry – either by the use of industry control variables, matched based on industry, or sampled from within one industry (Margolis et al., 2009) – the large majority of these have only controlled for the industry effects on CFP, and not for the potentially distinct industry effects between CSR and CFP (Hoepner et al., 2010). Moreover to date only a handful of studies have investigated the CSP and CFP relationship based on specific industries (Ogden and Watson, 1999; Simpson and Kohers, 2002), while even fewer have investigated the mediation/and or moderation effects of a specific industry characteristic (Baron et al., 2011; Hull and Rothenberg, 2008). With the exception of one working paper by Hoepner et al. (2010), no studies have yet analysed differences in the effects of CSP and CFP across industries.

Because “the issues change and they differ for different industries” (Carroll, 1979), this chapter focuses on addressing this knowledge gap via two empirical perspectives. First, in order to assess the heterogeneity across industries, we employ an event-study methodology partitioned across 10 industry groups and then further across 19 super-sectors. In this initial stage of analysis we find a mosaic of differences in the CSP–CFP relationship between industries and their underling super-sectors.
In our second empirical analysis we test a specific mechanism that may underline the heterogeneity in our industry results. We hypothesise industry sensitivity to the end consumer to be an important mediating factor between CSP and CFP. In other words we hypothesise distinct differences in the buying behaviour between industries primarily serving the end consumer, and industries primarily serving other industries or businesses. Indeed a recent Fobes article cites customer engagement as one of the key motivations to why companies should embrace CSR (Fobes, 2012) – thus making analysis of consumer-oriented industries a sound starting point. Constructing an Industry Sector Group dummy variable, defined as firms with low consumer orientation or sensitivity, reveals a negative mediating effect underlying the CSP–CFP relationship. In subsequent stepwise regressions, we show the mediation effect of consumer sensitivity to continue to remain statistically significant, despite all other explanatory variables – which are generally well documented – ceasing to be important.

Overall in this chapter we present results contrary to the meta-analysis conclusion “that there is a positive association between CSP and CFP across industries and across study contexts” (Orlitzky et al., 2003). Instead we find this relationship to be consequential to key industry characteristics. Consequently we highlight a potential research caveat, especially for studies that use multiple industry samples; in that while they control for the industry effect on CFP, they fail to control for the industry effect on the CSP–CFP relationship.

The remainder of this chapter is set out as follows. In the second section we review the literature and hypothesis development regarding consumer sensitivity. The third section identifies the data required to achieve this analysis. In the fourth section we briefly summarise our event study methodology, and in addition detail the methodology underlying our consumer sensitivity classification: that is, the process of identifying firms primarily
serving the end consumer. In the fifth section we present our empirical results and interpretation, while the last section provides a discussion and conclusion to this chapter.

5.1 Literature review and hypothesis development

The heterogeneity within industries is hypothesised to be a key factor in mediating the relationship between CSP and CFP (McWilliams and Siegel, 2001). For instance, industries can operate with distinctive behaviours according to governmental regulations, consumer orientation, public visibility, patterns of stakeholder behaviour, and environmental concerns (Arlow and Gannon, 1982; Griffin and Mahon, 1997). Moreover, CSR activities such as carbon neutrality, countering bribery, or charitable donations can have varying relevance according to differences in industry context; for example, we would expect carbon neutrality to be more relevant to the oil and coal industries, while the pharmaceuticals and media industries often rank highest (and therefore by relation relevance) in their activities of charitable contributions (CECP, 2015).

Another highlighted heterogeneity factor mediating the relationship between CSP and CFP is an industry’s potential to cause environmental or social damage; from an environmental perspective, positive effects to CFP were found to be less pronounced in environmentally problematic industries, attributed to the higher cost underlying environmental performance (Derwall et al., 2005; Semenova and Hassel, 2008). Similarly but from a different perspective, Hung and Wang (2014) argue that while investment in green technologies can be beneficial to the environment, such actions beyond regulatory requirements tend to be

57 For instance Chevron, Exxon and BP were recently identified as the most responsible for climate change since the beginning of the industrial age (Guardian, 2013).
expensive and do little to provide value to financial performance. While from a social perspective CSP effects on CFP were found to be more pronounced in socially problematic industries such as mining, forest products and chemicals (Herremans et al., 1993; Lee et al., 2009).

Based on the presented arguments and academic findings, it is clear that varying forms of CSR activities across differences in industry contexts can be expected to have non-identical effects on firm value. Thus industry-level CSR can play an important role in driving the CSP–CFP relationship. Consequently without the adequate controls in multiple industry analyses, studies that attempt an investigation otherwise may not be able to capture the distinct heterogeneity effects underlying the relationship between CSR and CFP.

In this chapter, we argue one important heterogeneity effect sensitive to CSR is an industry’s proximity to the end consumer (or to the ‘ultimate’ consumer, as opposed to industries primarily serving other industries or businesses). In fact, related market research show consumers prefer products and to invest in firms with ‘greener’ environmental reputations, and to those firms that portray leading corporate citizenship (Gildia, 1995; Quazi and O'Brien, 2000; Zaman et al., 1996). Consumer surveys indicate a similar line of consequence; for instance, 84 % of Americans state that given the same price and quality, will switch brands to a product associated with a good cause58; while 79 % of Americans consider corporate citizenship an important factor to purchase a company’s products.59

Under experimental settings CSR has been shown to lead to positive effects on consumer attitudes (for example, Brown and Dacin, 1997; Sen and Bhattacharya, 2001) and

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consequently generate higher revenues and sales margins by increasing consumer purchasing intentions (Sen et al., 2006). Overall CSR products can invoke increased desires on part of the consumer to purchase the company’s products. In reverse consumers have been found to be more sensitive to negative CSR information, and thus provide the underlying motivation to engage in CSR to minimise the costly nature of social transgressions (Sen and Bhattacharya, 2001).

One of the main drivers of CSR is the notion that it influences consumer loyalty, particularly in environments of high competition and growing customer expectations (Han et al., 2011). In an attempt to increase their loyalty base, firms will develop long term relationships and fulfil the various needs and wants of their customer (Han and Back, 2008). Recently the CSR variable has been used in studies to investigate effects on customer loyalty, in which a positive relationship between CSR and customer loyalty has been empirically demonstrated (de los Salmons et al., 2005; He and Li, 2011; Pérez et al., 2013).

Overall the literature has presented evidence consistent with the theoretical model of McWilliams and Siegel (2001), in which investment in CSR tend to be in industries with highly differentiated products, such as food, cosmetics, pharmaceuticals, financial services and automobiles. Moreover, these findings are corroborated by a growing body of academic research that find CSR in industries characterised by greater competition, or those with high advertising intensity. For instance, in the face of decreasing product differentiation and heightened competition, CSR activities are an innovative and less-likely replicable means of strengthening consumer relationships (Sen and Bhattacharya, 2004). Similarly, Fernández-Kranz and Santaló (2010) report firms with greater competition (as measured by Herfindahl–Hirschman Index) demonstrate higher investment in CSP. A result the authors interpret as
symptomatic of firms engaging in CSR as consumers, employees or investors were rewarding firms for such activities. Finally, Fisman et al. (2005) find CSR to be more prevalent in industries with high advertising intensity, reasoning this is an appropriate proxy for higher consumer perception. They conclude CSR increases “as the importance of consumers – and hence of brand awareness and community giving – increases” (p. 16).

Collectively these studies support the preposition that an industry’s sensitivity to the end consumer mediates the relationship between CSR and CFP. This proposition is based on two underlying features surrounding consumer buying behaviour.

The first is that end consumers are more concerned with their consumption of goods and services compared with their industrial counterparts. This argument is not new, with Useem (1988) asserting firms with high levels of public contact such as retailing, insurance, or banking to typically give more compared to low public contact industries such as mining or primary metals. Indeed a growing number of companies are now incorporating CSR to appeal to key market segments such baby boomers and ‘generation X’ shoppers (McWilliams and Siegel, 2001).

Moreover by using these products, consumers gain access to socially responsible attributes such as ‘eco-friendliness’ and the assurance of higher standards in labour rights (for example, eschewing sweat-shop conditions). The consumption of such products can appeal to consumers as indirectly supporting a cause, while rewarding firms that choose to engage in such activities (McWilliams and Siegel, 2001). In addition, end consumers can also be influenced significantly by social group forces, psychological factors (for example, sense of duty and justice) and consumer situational effects (Corey, 1991). In contrast, the buying behaviour of their industrial counterparts can be highly formalised based on predefined
procurement practices and strict economic evaluations. Distinct from individual consumers, industrial buyers are often specifically targeted with personal selling (Corey, 1991).

The second is that public image can serve a more prominent role for firms that rely on the majority of their demand from the buying behaviour of the end consumer. This is in contrast with industrial firms that will typically sell to only a few large customers and thus less reliant on public image tools such as advertising or product marketing. The role of public image relies on the assumption that firms that engage in CSR provide products and services that are more dependable and of a higher quality (McWilliams and Siegel, 2001). Therefore firms that primarily serve the end consumer may find it more advantageous to engage in ‘publicly visible’ CSR, such as generous charitable giving or the assistance in community development projects. These activities can attract greater public attention and in turn signal more reliable and honest firms (Siegel and Vitaliano, 2007).

In sum, CSR should have greater demand in industries primarily serving the end consumer, as there exists a greater motivation for consumers to increase demand for products and services under this trading environment. In particular due to these underlying features of consumer behaviour, we argue industries that primarily serve the end consumer will tend to benefit positively from their engagement in CSR activities. In fact by extension, the allocation of resources under the context of their industrial counterparts can be perceived to be a misallocation of scarce resources – as these firms will unlikely attain the same consumer-related benefits.

Following Lev et al. (2010), we specifically hypothesise firms with high consumer sensitivity to experience positive market reactions to CSR. This is in contrast to firms with low consumer sensitivity (that is, serving industrial consumers), and which will experience
negative market reactions to CSR. The hypothesised link between CSR and CFP and the mediating effects of consumer sensitivity are depicted in Figure 3.

**Figure 3: The link between CSR and market reaction**

Our hypothesised link is empirically supported by several studies. Curcio and Wolf (1996) separate firms into two categories: those that receive the majority of revenue from the ultimate consumer and those that receive the majority of revenues from industrial customers. The authors find the adoption of CSR strategies appears to only significantly increase the financial performance of firms dependent on the buying behaviour of the ultimate consumer, with the latter category (that is, those primarily serving industrial customers) seemingly
benefiting most from the contrary choice of environmental indifference or irresponsibility (Curcio and Wolf, 1996).

In a study across 10 industry sectors, Hoepner et al. (2010) find only consumer discretionary and healthcare sectors to experience significant and positive CSR effects on CFP. As both industries have relatively high proximity to the end consumer, the authors argue, anecdotally, to evidence that consumer trust is an important variable between the CSP–CFP link across industries. Moreover their study highlights an important premise; in that end consumers will place greater emphasis to social concerns in their consumption of goods and services, relative to other businesses in their procurement practices.

Lev et al. (2010) report corporate philanthropy leads to significant and subsequent sales growth. Investigating possible underlying mechanisms reveal positive associations are particularly pronounced in relation to firms exposed to high consumer perception – defined by the author as those producing goods or services primarily for the individual consumer. All other industries are categorised as low consumer sensitive (that is, industrial customers) and consequently are found to have insignificant effects. Overall the authors conclude corporate managers can justify philanthropic programs as long as they can explain to their sceptical shareholders how corporate giving can increase customer satisfaction and, as a consequence, sales growth. Further analysis finds an important factor; institutional investment to be positively related with charitable giving for high consumer sensitive firms, and negatively related with giving for low consumer sensitive firms.

Employing cross-sectional analysis and analysing mandatory CSR disclosures, Hung and Wang (2014) report negative effects to CFP are more pronounced among firms providing non-consumer related products (defined by the author as products sold mainly to other firms).
Overall, they explain this category of firms to be less likely to enjoy the consumer related benefits of CSR, such as brand recognition and firm reputational enhancements. Without the realisation of the aforementioned benefits, the authors conclude non-consumer firms will only impose social burdens on business operations.

Following the results of these studies, we formally present our two key contrasting hypotheses: the first predicts consumer orientated industries (that is, those primarily serving the end consumer) will have a positive mediation effect to the CSP–CFP relationship.

**H1: Consumer-orientated industries have a positive influence on the CSP-CFP relationship.**

The second hypothesis examines the counterpart to this story, in which we predict non-consumer industries (that is, those primarily serving industrial consumers or businesses) will have a negative mediation effect on the CSP–CFP relationship. A relationship consequence due to the lack of CSR benefits attained under this trading environment.

**H2: Non–consumer orientated industries have a negative influence on the CSP–CFP relationship.**

5.2 Data

5.2.1 Sample of interest

Our investigation in this chapter is focused on analysing differences in the CSP–CFP relationship across industries. To enable analysis under this context requires a CSP proxy
measured over a variety of different industries. Therefore, similar to our previous empirical chapters, we employ analysis of social index inclusion to the FTSE4Good Global Index (for information on this data source see section 3.3). However, unlike our previous chapters, instead of aggregate analysis at the global level, we undertake this CSP proxy partitioned across 10 industrials, 19 super-sectors, 41 sectors and over 100 sub-sector classifications where appropriate. We extract the dates of announcements of social index inclusion from the semi-annual reviews published on the FTSE4Good website over the period from September 2003 to March 2012. From this initial examination we collect 729 firms.

To qualify for our analysis, firms must have accounting data available on the Worldscope database. This leaves us with a sample of 699 index inclusions. Similar to our previous empirical chapters, we check for confounding effects during the three days preceding and the three days immediately following the event at \( t = 0 \). Our investigation identifies 48 firms that meet these criteria.\(^6\) These are eliminated leaving a final sample of 651 firms.

Using this sample of firms, our analysis in this chapter is threefold: first we conduct an event study analysis partitioned across 10 industry groups, and then in order to gain wider insight partitioned further across their underlying 19 super-sectors. Second, we classify out sample into either ‘consumer sector group’ or ‘industry sector’ and perform a univariate test to compare abnormal returns. Third we employ stepwise cross-sectional regression to investigate the mediating effects of consumer sensitivity, captured via our *Industry Sector Group* dummy variable (refer to the methodology in section 5.3 for construction details). This

\(^6\) For example, we find the following confounding events: Premier Oil’s announcement of net profit up 188 per cent, the Laird Group’s announcement of acquisition of Home Doors limited and Houseproud, and SES’s global announcement of a new state-of-the-art DVB-RCS platform.
section of the analysis also includes our explanatory variables used in Chapter 4, namely our control variables and measures of financial constraints. Due to the inclusion of these explanatory variables our sample size falls to a ‘common sample’ count of 453 firms. Appendix 2 provides a summary of the data construction breakdown as presently detailed.

5.2.2 Accounting data

The accounting data employed in this chapter, and which underlie the majority of the explanatory variables used in this thesis are sourced from Worldscope (for more information on this data source see section 3.3.1). From this database we construct the following explanatory variables: to capture firm size, we use the natural logarithm of market value (Size); firm profitability is measured by return on equity (ROE) and asset turnover (Asset Turnover), with the latter defined as sales over total assets; leverage is defined as total debt over total assets (Leverage); dividend payout is measured as net dividends over operating income (Payout); holdings of cash is defined as total cash and marketable securities over total assets (Cash); capital expenditure is defined as capital expenditure over total assets (CAPEX); and future growth is captured by market value of equity over book value to equity (MTB).

In addition, we also exclude our institutional ownership variables (namely institutional turnover and changes in institutional ownership), as these variables will significantly reduce our sample size.\textsuperscript{61} Notwithstanding this exclusion, the remaining explanatory variables included in this section are consistent with our previous empirical chapters. Complete

\textsuperscript{61} As institutional ownership data is not consistently available before March 2008, the inclusion of institutional ownership variables will restrict our sample size from 453 to 96 firms. Given the purpose of this chapter is to analyse the CSP-CFP link across various industries, a sample size of 96 will not be appropriate for this purpose.
variable definitions and summary statistics are provided in Table 20 and pair-wise correlations are provided in Table 21.

**Table 20: Variable definitions of summary statistics with industry group variable**

Unless otherwise specified all variables collected refer to the last full fiscal year before inclusion to the FTSE4Good Global Index. Accounting data are from Worldscope, while industry classification data are sourced from ICB.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition</th>
<th>N</th>
<th>VIF</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR-5 Day</td>
<td>5 DAY cumulative abnormal</td>
<td>453</td>
<td>-</td>
<td>-0.001</td>
<td>0.037</td>
<td>-0.118</td>
<td>0.151</td>
</tr>
<tr>
<td>Size</td>
<td>Natural logarithm of market value</td>
<td>453</td>
<td>6.6</td>
<td>9.522</td>
<td>2.924</td>
<td>2.328</td>
<td>17.174</td>
</tr>
<tr>
<td>Leverage</td>
<td>Total debt over total assets</td>
<td>453</td>
<td>1.4</td>
<td>0.269</td>
<td>0.191</td>
<td>0.000</td>
<td>0.923</td>
</tr>
<tr>
<td>ROE</td>
<td>Earnings before interest and tax (EBIT) over the book value of common equity</td>
<td>453</td>
<td>1.5</td>
<td>14.863</td>
<td>54.150</td>
<td>-83.880</td>
<td>988.370</td>
</tr>
<tr>
<td>Asset Turnover</td>
<td>Sales over total assets</td>
<td>453</td>
<td>1.2</td>
<td>0.930</td>
<td>0.749</td>
<td>0.018</td>
<td>8.870</td>
</tr>
<tr>
<td>MTB</td>
<td>Market value of equity over book value to equity</td>
<td>453</td>
<td>1.5</td>
<td>83.832</td>
<td>550.596</td>
<td>-3515.15</td>
<td>7863.636</td>
</tr>
<tr>
<td>CAPEX</td>
<td>Capital expenditure over total</td>
<td>453</td>
<td>1.2</td>
<td>0.050</td>
<td>0.049</td>
<td>0.000</td>
<td>0.411</td>
</tr>
<tr>
<td>Payout</td>
<td>Net dividends over operating</td>
<td>453</td>
<td>1.0</td>
<td>0.377</td>
<td>2.206</td>
<td>-5.506</td>
<td>38.682</td>
</tr>
<tr>
<td>Cash</td>
<td>Cash and marketable securities over total assets</td>
<td>453</td>
<td>1.4</td>
<td>0.109</td>
<td>0.121</td>
<td>0.000</td>
<td>0.909</td>
</tr>
<tr>
<td>Industry Sector Group</td>
<td>Dummy variable = 1 if firms are categorized as low consumer sensitive, and zero otherwise (that is, categorized as high consumer sensitive)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Table 20, we report the following key descriptive statistics: The mean 5 DAY cumulative abnormal return is -0.01 %, ranging from -11.8 % to 15.1 %; mean natural logarithm of market value is 9.52; mean leverage is 26.9 %, reaching as high as 92.3 %; mean ROE is 14.86; mean asset turnover is 93 % of total assets; mean market-to-book ratio is 83.83
(median 2.28)\textsuperscript{62}; mean dividend Payout is 37.7 % of operating income; mean capital expenditure as a proportion of total assets is 5 %; and mean cash holdings including marketable securities is 10.9 %. Examining variance inflation factors (VIF) reveals no multicolinearility issues between the explanatory variables, which includes our consideration of fix effects variables. Average VIF is 1.98, while all factors remain under the critical value of 10 (Neter et al., 1989).

Table 21: Pairwise correlations of firm characteristics

This table presents pairwise correlations between variables (unbalanced sample). CARs are abnormal returns over the -2,+2 days surrounding announcements of inclusion to the FTSE4GOOD Social Global Index

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) CAR – 5 DAY</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Size</td>
<td>0.08**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Leverage</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) ROE</td>
<td>-0.03</td>
<td>0.00</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Asset Turnover</td>
<td>-0.05</td>
<td>-0.10**</td>
<td>-0.18***</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6) MTB</td>
<td>0.35***</td>
<td>-0.12***</td>
<td>0.00</td>
<td>0.02</td>
<td>-0.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) CAPEX</td>
<td>-0.01</td>
<td>0.01</td>
<td>0.13***</td>
<td>0.00</td>
<td>-0.01</td>
<td>-0.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8) Payout</td>
<td>-0.07</td>
<td>0.00</td>
<td>-0.04</td>
<td>-0.01</td>
<td>0.03</td>
<td>0.00</td>
<td>-0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9) Cash</td>
<td>0.01</td>
<td>-0.03</td>
<td>-0.38***</td>
<td>0.05</td>
<td>0.03</td>
<td>0.10***</td>
<td>-0.17***</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>(10) INDUSTRY GROUP</td>
<td>-0.12***</td>
<td>-0.13***</td>
<td>0.08**</td>
<td>-0.03</td>
<td>0.01</td>
<td>-0.06</td>
<td>0.07*</td>
<td>0.00</td>
<td>-0.03</td>
</tr>
</tbody>
</table>

*Significant at the 10% level, ** significant at the 5% level, ***significant at the 1% level

\textsuperscript{62} While standard errors (particularly MTB) can indicate potential issues relating to heteroscedasticity, based on White’s (White, 1980; White, 1982) specification test no heteroscedasticity is present (at the 1% level). For brevity however we present standard errors (and their associated p-values) corrected for heteroscedasticity. See OLS regression results.
From Table 21, pairwise correlations reveal no real concern. The highest correlation is experienced between cash holdings and leverage (−0.38), followed by the correlation between MTB and CAR - 5 DAY (0.35). All remaining correlations fall below +/- 0.18.

5.2.3 ICB industry classifications

The Industry Classification Benchmark (ICB) provides a systematic categorisation of 70,000 companies and 75,000 securities worldwide. Through four levels of classification (level 1 – 10 industries, level 2 – 19 super-sectors, level 3 – 41 sectors, level 4 – 114 sub-sectors), ICB allows rigorous and transparent analyst across detailed levels of classification, and one that is achieved across a global scale. Figure 4 illustrates the ICB structure according to each classification level.

ICB was originally developed by Dow Jones and FTSE, but now is maintained solely by FTSE International Limited. ICB has been adopted by stock exchanges representing over 65% of the world’s market capitalisation, including NYSE Euronext, NASDAQ OMX, London Stock Exchange, Taiwan Stock Exchange, Johannesburg Stock Exchange, Borsa Italiana, Singapore Stock Exchange, Athens Exchange, Cyprus Stock Exchange and Kuwait Stock Exchange (ICB, 2014).
We use ICB to classify our sample into industry and sector groups. In our first empirical analysis we use level 1 and 2 and where appropriate for suitable analysis level 3 given available sample sizes. According to these partitions, we perform event studies to investigate differences in CSR effects across industries and their underlying super-sectors.

In our second empirical analysis we categorise our sample as belonging to either ‘consumer sector group’ or ‘industry sector group’. To achieve this classification, we employ a mixture of level 1 classifications (to make general categorisations following Lev et al., 2010) and level 4 classifications to access ICB definitions (that is, ICB sub-sector definitions) and make more specific categorisations as required.

The industry composition of our sample based on ICB level 1 and level 2 are detailed in Table 22.
According to Table 22, partitions according to industry classifications (ICB level 1 – Panel A) reveal Industrials (21.35 %) and Financials (19.20 %) to be the dominant industries in our sample. All other remaining industries range between 1.54 % and 12.60 %. Similarly when our sample is further partitioned into super-sector classifications (ICB level 2 – Panel B), Industrial Goods & Services (17.67 %) and Technology (12.60 %) are the largest super-sectors in our sample. All other remaining super-sectors displayed proportions ranging from 1.54 % to 7.07 %.
Table 22: Sample by industry compositions

Industry compositions according to ICB classifications level 1 (Panel A) and according to ICB classifications level 2 (Panel B).

<table>
<thead>
<tr>
<th>ICB Industry Level 1</th>
<th>N</th>
<th>%</th>
<th>ICB Super-Sector Level 2</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Materials</td>
<td>55</td>
<td>8.45</td>
<td>Automobiles &amp; Parts</td>
<td>19</td>
<td>2.92</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>78</td>
<td>11.98</td>
<td>Banks</td>
<td>31</td>
<td>4.76</td>
</tr>
<tr>
<td>Consumer Services</td>
<td>82</td>
<td>12.60</td>
<td>Basic Resources</td>
<td>22</td>
<td>3.38</td>
</tr>
<tr>
<td>Financials</td>
<td>125</td>
<td>19.20</td>
<td>Chemicals</td>
<td>33</td>
<td>5.07</td>
</tr>
<tr>
<td>Health Care</td>
<td>46</td>
<td>7.07</td>
<td>Construction &amp; Material</td>
<td>24</td>
<td>3.69</td>
</tr>
<tr>
<td>Industrials</td>
<td>139</td>
<td>21.35</td>
<td>Financial Services</td>
<td>34</td>
<td>5.22</td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td>10</td>
<td>1.54</td>
<td>Food &amp; Beverage</td>
<td>20</td>
<td>3.07</td>
</tr>
<tr>
<td>Technology</td>
<td>82</td>
<td>12.60</td>
<td>Healthcare</td>
<td>46</td>
<td>7.07</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>16</td>
<td>2.46</td>
<td>Industrial Goods &amp; Services</td>
<td>115</td>
<td>17.67</td>
</tr>
<tr>
<td>Utilities</td>
<td>18</td>
<td>2.76</td>
<td>Insurance</td>
<td>20</td>
<td>3.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Media</td>
<td>41</td>
<td>6.30</td>
</tr>
<tr>
<td>Total</td>
<td>651</td>
<td>100</td>
<td>Oil &amp; Gas</td>
<td>10</td>
<td>1.54</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Personal &amp; Household Goods</td>
<td>39</td>
<td>5.99</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Real Estate</td>
<td>40</td>
<td>6.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Retail</td>
<td>17</td>
<td>2.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Technology</td>
<td>82</td>
<td>12.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Telecommunications</td>
<td>16</td>
<td>2.46</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Travel &amp; Leisure</td>
<td>24</td>
<td>3.69</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Utilities</td>
<td>18</td>
<td>2.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>651</td>
<td>100</td>
</tr>
</tbody>
</table>
5.3 Methodology

5.3.1 Estimation of event study

We use standard event-study methodology to estimate the stock market reaction (partitioned according to industry and underlying super-sector) to announcements of firms’ inclusion in the FTSE4Good Global Index. Our estimation period to calculate ‘normal’ returns is 249 days preceding the event (from \( t = 0 \)), with an additional 12 days buffer to ensure our calculation of normal returns are not contaminated with the event of interest (effectively \(-260\) to \(-12\), see Figure 5), for example due to insider trading.

Our event window is defined as two days preceding and following the announcement date \((-2\) to \(+2\)) which is similar to studies such as (Faccio et al., 2006). We select a short event window to ensure abnormal returns captured are focused on the impact of the event, while minimising the influence of other noise. Moreover, our event window length is particularly suitable for our multi-country sample, given that different time zones can impact the date on which information is reflected in stock prices (Campbell et al., 2010).

Figure 5: Illustration of the time frame of our event study
In addition, our event window is within the period in which all confounding events (with an additional one day extra on either side) were eliminated to the best of our abilities, giving the study further legitimacy with regards to any abnormal returns detected (see Figure 6).

![Illustration of removal of confounding event period relative to the event window period]

**Figure 6: Illustration of removal of confounding event period relative to the event window period**

To calculate abnormal returns, we employ the market model as our basis of ‘normal returns’. While there are more complex models available in determining this return (for instance, Fama and French, 1992 three factor model; and Carhart, 1997 four factor model), the gains from employing additional explanatory variables beyond the market factor are small (Campbell and Andrew, 1997).

Thus using the market model, we define abnormal returns as the difference between the observed return of firm $i$ and the expected return predicted by the benchmark model. Formally:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad t = -260, ..., -12$$

and

$$AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt}$$
Where

$$AR_{it} = \text{abnormal return of firm } i \text{ on day } t$$

$$R_{it} = \text{observed return of firm } i \text{ on day } t$$

$$\alpha_i = \text{market model intercept, estimated by OLS based on the estimation period} \quad \text{(-260 to -12)}$$

$$\beta_i = \text{slope, estimated by OLS based on the estimation period (-260 to -12)}$$

$$R_{mt} = \text{observed return on the appropriate MSCI country market index on day } t$$

As our sample of firms spans 24 countries, we apply the appropriate country index from the family of MSCI country indices. This is to ensure our calculation of ‘normal returns’ is controlled for on a country-by-country basis. By the same token our results are robust to more than one benchmark index, while avoiding the bias that may result from using one single global or otherwise benchmark.

**5.3.2 Test statistics**

To test the significance of abnormal returns, we follow Patell (1976) and standardise abnormal returns on the event day $E$ by the square root of the estimation period return variance $\hat{\sigma}_i$, with an additional adjustment for forecasting error.

$$SAR_{iE} = AR_{iE} \left/ \sqrt{\hat{\sigma}_i \left[ 1 + \frac{1}{T_i} + \frac{\sum_{m=1}^{L} (R_{mE} - \bar{R}_m)^2}{\sum_{m=1}^{L} (R_{mt} - \bar{R}_m)^2} \right]} \right.$$  

Where:
$SAR_{iE}$ = standardised abnormal return of firm $i$ on event day $E$

$T_i$ = number of days in firm $i$’s estimation period (249 days)

$\bar{R}_m$ = average market return during the estimation period

Cumulative standardised abnormal returns (CSAR) are averaged across five different event windows as follows: (0), (0, +1), (–1, +1), (–2, +2), and lastly (–5, +5).

To test the significance of CSAR we use three standard test statistics commonly found in the event study literature. Each test statistic is chosen based on their econometric advantages: the Patell (1976) t-test accounts for the event period residuals being calculated based on an out-of-sample prediction, and in addition controls for heteroscedasticity; the Boehmer et al. (1991) t-test is unaffected by event clustering and allows for event-induced variance; and the Wilcoxon signed rank z-test is robust to the effects of outliers.

### 5.3.3 Consumer sensitivity classification

As discussed in the previous section, a firm’s ability to gain positive benefits from CSR engagement is likely affected by the purchasing decisions of their ultimate consumer. Thus we partition our sample into two categories: firms where the principal customer is the end consumer and firms where the principal customer is industry.

Due to the aggregate nature of industry classifications (that is, classifications based on ICB – level 1) attempts to accurately categorise firms at the industry level become problematic, as industry groups may be too noisy to permit a thorough analysis of the ‘consumer effect’. One example of this aggregate issue is of the Financial industry (ICB code 8000) which is the sub-
sector aggregate of 22 possible other sub-sectors: Banks (ICB code 8355), Life Insurance (ICB code 8575), Consumer Finance (ICB code 8773), Asset Managers (ICB code 8771), Real Estate Services (ICB code 8367), and Retail REITS (ICB code 8672) to only name a few. Each sub-sector can have varying sensitivity to the end consumer; for instance Banks - defined by ICB as “providing a broad range of financial services, including retail banking, loans and money transmissions” - will have greater sensitivity to the end consumer; while in contrast the products and services of the Asset Manager - defined by ICB as “provid[ing] custodial, trustee and other related fiduciary services, including mutual fund management companies” - are largely orientated to industries serving other industries.

Thus we classify our sample further into their sub-sector group – ICB level 4. This last step results in over 100 sub-sector classifications. To categorise these into ‘consumer sector group’ or ‘industry sector group’ we undertake the following steps:

Step 1:

Following the same rationale as Lev et al. (2010) we automatically categorise all sub-sectors under the Consumer Goods industry (ICB code 3000), Consumer Services industry (ICB code 5000) and Health Care industry (ICB code 4000) into the ‘consumer sector group’. In addition, we classify all sub-sectors under the Industrials industry (ICB code 2000), Utilities industry (ICB code 7000), Basic Materials industry (ICB code 1000), and Technology

63 Specifically Lev (2010) classifies all firms under Finance and Consumer Goods into the ‘high customer sensitive’ category, while all other industries (namely Basic Industrials, Capital Goods, Construction, Energy, Transportation, and Utilities) are categorised as ‘low customer sensitive’. In addition, we consider Hoepner et al. (2010) findings that only two industries (out of the 10 investigated) - Consumer Discretionary and Health Care - was found to experience positive CSR effects to CFP; an outcome concluded to be associated with the industries high proximity to the end consumer.
Industry (ICB code 9000) as low consumer sensitive\textsuperscript{64}, and therefore belong to the ‘industry sector group’. The first step in this process automatically categorises 454 firms, leaving 197 firms (or 47 sub-sectors) remaining.

Step 2:

For all remaining sub-sectors, we use ICB definitions to gain information on the primary goods or services provided. ICB categorises companies according to their primary source of revenue, which ensures accurate classification and definition. Using these definitions we classify the remaining sub-sectors into their appropriate groups.

Step 3:

For robustness, we randomly check 10 firms from each of the 10 possible industry groups (ICB level 1), and evaluate the accuracy of our classification process using financial reports then websites in that order. For instance, financial reports can reveal the source of the majority of sales (either to the end consumer or to largely businesses/wholesalers), while the company’s website can indicate the principal target consumer.

\textsuperscript{64} From this automatic categorisation in step 1, the following sub-sectors are instead classified to the ‘consumer sector group’: Paper (many products from this sub-sector are consumer related; for instance newsprint, wrapping paper, facial tissue, etc.), Delivery Services (including Deutsche Post and United Parcel), and Business and Training Employment (companies primarily providing services for job seekers i.e. end consumers). In addition due to their positive associations with enhancing the environment and sustainable consumption, we further classify Alternative Electricity (defined by ICB as “companies generating and distributing electricity from a renewable source, [including] companies that produce solar, water, wind and geothermal electricity”) and Renewable Energy Equipment (defined by ICB as “companies that develop or manufacture renewable energy equipment utilizing sources such as solar, wind, tidal, geothermal, hydro and waves”) to the ‘consumer sector group’.  

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Table 23 provides a sample of ICB definitions used in step 3, Appendix 4 provides the full list of ICB sub-sector definitions, while Figure 7 summarises our consumer sensitivity methodology.

Table 23: Sample of ICB definitions and classification outcome

Provides a sample of ICB definitions and the corresponding classification outcome.

<table>
<thead>
<tr>
<th>Sub-sector (ICB level 4)</th>
<th>ICB definition</th>
<th>Classification decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodity Chemicals (Basic Materials)</td>
<td>Producers and distributors of simple chemical products that are primarily used to formulate more complex chemicals or products, including plastics and rubber in their raw form, fiberglass and synthetic fibres.</td>
<td>Industry sector group</td>
</tr>
<tr>
<td>Business Support Services (Industrials)</td>
<td>Providers of nonfinancial services to a wide range of industrial enterprises and governments. Includes providers of printing services, management consultants, office cleaning services, and companies that install, service and monitor alarm and security systems.</td>
<td>Industry sector group</td>
</tr>
<tr>
<td>Asset Manager (Financials)</td>
<td>Companies that provide custodial, trustee and other related fiduciary services. Includes mutual fund management companies.</td>
<td>Industry sector group</td>
</tr>
<tr>
<td>Banks (Financials)</td>
<td>Banks providing a broad range of financial services, including retail banking, loans and money transmissions.</td>
<td>Consumer sector group</td>
</tr>
<tr>
<td>Health Care Providers (Health Care)</td>
<td>Owners and operators of health maintenance organizations, hospitals, clinics, dentists, opticians, nursing homes, rehabilitation and retirement centres. Excludes veterinary services, which are classified under Specialised Consumer Services.</td>
<td>Consumer sector group</td>
</tr>
</tbody>
</table>
We categorise our sample into ‘consumer sector group’ or ‘industry sector group’ via steps 1 and 2. Step 1 automatically categorises our sub-sectors under the industry headings of Consumer Goods, Consumer Services, Health Care, Industrials, Utilities, Basic Materials and Technology. Step 2 categorises the remaining sub-sectors according to ICB sub-sector definitions. Step 3 is the robustness check of our classification process, achieved first through an evaluation of the company’s financial reports and then an examination of its website.

Following this classification methodology results in 298 firms in the ‘consumer sector group’ and 353 firms in the ‘industry sector group’. Based on this methodology, and for our subsequent regression analysis, we construct the ‘industry sector group’ dummy variable defined as equal to one if firms are categorised as ‘industry sector group’, or otherwise zero for all remaining firms (that is, categorised as ‘consumer sector group’). Tables 33 and 34 (reported under Appendix 4) provides the full list of sub-sectors plus definitions according to each aforementioned key group, while Table 24 provides this same list according to sub-sector heading only.
Table 24: List of subsectors under the ‘consumer sector group’ or ‘industry sector group’

This table presents our subsectors (ICB level 4) divided into either ‘consumer sector group’ – those primarily serving individual consumers, or ‘industry sector group’ – those primarily serving industry customers.

<table>
<thead>
<tr>
<th>Consumer group – ICB level 4</th>
<th>Industry group – ICB level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airlines</td>
<td>Aerospace</td>
</tr>
<tr>
<td>Alternative Electricity</td>
<td>Asset Managers</td>
</tr>
<tr>
<td>Apparel Retailers</td>
<td>Auto Parts</td>
</tr>
<tr>
<td>Automobiles</td>
<td>Building Materials &amp; Fixtures</td>
</tr>
<tr>
<td>Auto Parts</td>
<td>Business Support Services</td>
</tr>
<tr>
<td>Banks</td>
<td>Commercial Vehicles &amp; Trucks</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>Commodity Chemicals</td>
</tr>
<tr>
<td>Brewers</td>
<td>Computer Hardware</td>
</tr>
<tr>
<td>Broadcasting &amp; Entertainment</td>
<td>Computer Services</td>
</tr>
<tr>
<td>Broadline Retailers</td>
<td>Containers &amp; Packaging</td>
</tr>
<tr>
<td>Business Training &amp; Employment Agencies</td>
<td>Conventional Electricity</td>
</tr>
<tr>
<td>Clothing &amp; Accessories</td>
<td>Diversified Industrials</td>
</tr>
<tr>
<td>Consumer Electronics</td>
<td>Diversified REITs</td>
</tr>
<tr>
<td>Consumer Finance</td>
<td>Electrical Components &amp; Equipment</td>
</tr>
<tr>
<td>Delivery Services</td>
<td>Electronic Equipment</td>
</tr>
<tr>
<td>Drug Retailers</td>
<td>Electronic Office Equipment</td>
</tr>
<tr>
<td>Durable Household Products</td>
<td>Equity Investment Instruments</td>
</tr>
<tr>
<td>Farming, Fishing &amp; Plantations</td>
<td>Exploration &amp; Production</td>
</tr>
<tr>
<td>Food Products</td>
<td>Financial Administration</td>
</tr>
<tr>
<td>Food Retailers &amp; Wholesalers</td>
<td>Fixed Line Telecommunications</td>
</tr>
<tr>
<td>Footwear</td>
<td>Gas Distribution</td>
</tr>
<tr>
<td>Full Line Insurance</td>
<td>General Mining</td>
</tr>
<tr>
<td>Furnishings</td>
<td>Heavy Construction</td>
</tr>
<tr>
<td>Gambling</td>
<td>Industrial &amp; Office REITs</td>
</tr>
<tr>
<td>Health Care Providers</td>
<td>Industrial Machinery</td>
</tr>
<tr>
<td>Home Construction</td>
<td>Industrial Suppliers</td>
</tr>
<tr>
<td>Internet</td>
<td>Integrated Oil &amp; Gas</td>
</tr>
<tr>
<td>Investment Services</td>
<td>Iron &amp; Steel</td>
</tr>
<tr>
<td>Life Insurance</td>
<td>Marine Transportation</td>
</tr>
<tr>
<td>Media Agencies</td>
<td>Mobile Telecommunications</td>
</tr>
<tr>
<td>Medical Equipment</td>
<td>Multi-utilities</td>
</tr>
<tr>
<td>Medical Supplies</td>
<td>Nonferrous Metals</td>
</tr>
<tr>
<td>Nondurable Household Products</td>
<td>Oil Equipment &amp; Services</td>
</tr>
</tbody>
</table>
5.3.4 Empirical model

For our subsequent regression analysis, we construct the Industry Sector Group dummy variable equal to 1 if firms are categorised as ‘low consumer sensitive’, otherwise zero for all remaining firms (that is, firms that are categorised as ‘high consumer sensitive’).

Our hypothesis for this chapter is empirically tested by running stepwise OLS regression on various sets of control variables. Each control variable provides additional robustness to the Industry Sector Group dummy variable effect. The following equations via stepwise regression were performed:

Equation 1 is a univariate regression of consumer sensitivity (Industry Sector Group) and the abnormal returns derived from the announcement effect of social index inclusion (5 DAY
CAR); Equation 2 includes firm level control variables of (Size), return on equity (ROE), asset turnover (Asset Turnover), leverage (Leverage), and to control for future growth opportunities the market-to-book ratio (MTB); Equation 3 includes our financial slack variables of capital expenditure (CAPEX), dividend payout (Payout), and cash holdings (Cash). All equations control for both country and year fix effects. Formally we estimate the following regression equations:

5.3.4.1 Equation 5

\[ CAR = \alpha + \beta_1 \text{Industry Sector Group} + \sum_{j=1}^{13} \delta_j \text{Country} + \sum_{t=1}^{9} \gamma_t \text{Year} \quad [5] \]

5.3.4.2 Equation 6

\[ CAR = \alpha + \beta_1 \text{Industry Sector Group} + \beta_2 \text{Size} + \beta_3 \text{Leverage} + \beta_4 \text{ROE} \]
\[ + \beta_5 \text{Asset Turnover} + \beta_6 \text{MTB} + \sum_{j=1}^{13} \delta_j \text{Country} + \sum_{t=1}^{9} \gamma_t \text{Year} \quad [6] \]

5.3.4.3 Equation 7

\[ CAR = \alpha + \beta_1 \text{Industry Sector Group} + \beta_2 \text{Size} + \beta_3 \text{Leverage} + \beta_4 \text{ROE} \]
\[ + \beta_5 \text{Asset Turnover} + \beta_6 \text{MTB} + \beta_7 \text{CAPEX} + \beta_8 \text{Payout} \]
\[ + \beta_9 \text{Cash Holdings} + \sum_{j=1}^{13} \delta_j \text{Country} + \sum_{t=1}^{9} \gamma_t \text{Year} \quad [7] \]
5.4 Results

5.4.1 Results across industries

In this section we examine the results of employing event study analysis partitioned into industry group (ICB level 1), and then to achieve analysis of their underlying performances partitioned further at the super-sector level (ICB level 2).

Our first analysis divides our sample into 10 industry groups; Basic Materials, Consumer Goods, Consumer Services, Financials, Health Care, Industrials, Oil and Gas, Technology, Telecommunications, and Utilities. The event study results partitioned accordingly are presented in Table 25.

According to Table 25, the Health Care and Oil & Gas industries experience positive market reactions, albeit their level of significance can be considered weak; both industries only significant under the Boehmer t-test, and to only one event window each; the (–1,+1) and (–5, +5) respectively. In contrast, we find the Industrials, Technology, Telecommunications and Utilities Industries to experience negative market reactions. For similar reasons the Industries and Telecommunications industries can be considered ‘weak’, while the Technology and Utilities industries is significant across most event windows, as well as all three standard test-statistics. Interpreting the economic significance of the latter two industries reveal Technology and Utilities, in the 2 days preceding and following the announcement date, to experience a market movement of -0.467 % and -0.930 % respectively. This represents a lost in market value of approximately USD $28.9 million and USD $89.0 million on average per firm in each respective industry.
Table 25: Event study results partitioned into industry classifications – ICB level 1

This table presents event study results partitioned into industry classifications (ICB classifications – level 1). N represents the number of firms for each industry. CAR is cumulative abnormal return over 5 days. Three standard test of significance were applied; the t-statistics of (Patell, 1976) and (Boehmer et al., 1991), and the z-statistic of the Wilcoxon signed rank test.

<table>
<thead>
<tr>
<th>Industry</th>
<th>N</th>
<th>CAR (%)</th>
<th>Patell t-test</th>
<th>Boehmer t-test</th>
<th>Wilcoxon z-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0, +1</td>
<td>−1, +1</td>
</tr>
<tr>
<td>Basic Materials</td>
<td>55</td>
<td>0.656</td>
<td>0.38</td>
<td>1.26</td>
<td>0.89</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>78</td>
<td>0.515</td>
<td>0.40</td>
<td>1.28</td>
<td>1.46</td>
</tr>
<tr>
<td>Consumer Services</td>
<td>82</td>
<td>−0.371</td>
<td>−0.31</td>
<td>−0.08</td>
<td>−0.56</td>
</tr>
<tr>
<td>Financials</td>
<td>125</td>
<td>−0.013</td>
<td>0.29</td>
<td>−1.16</td>
<td>−0.81</td>
</tr>
<tr>
<td>Health Care</td>
<td>46</td>
<td>0.457</td>
<td>1.39</td>
<td>1.25</td>
<td>1.43</td>
</tr>
<tr>
<td>Industrials</td>
<td>139</td>
<td>−0.294</td>
<td>−0.70</td>
<td>−2.76***</td>
<td>−1.26</td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td>10</td>
<td>0.816</td>
<td>0.53</td>
<td>0.03</td>
<td>0.34</td>
</tr>
<tr>
<td>Technology</td>
<td>82</td>
<td>−0.467</td>
<td>−1.34</td>
<td>−1.34</td>
<td>−1.25</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>16</td>
<td>−0.527</td>
<td>−1.34</td>
<td>−0.75</td>
<td>−0.12</td>
</tr>
<tr>
<td>Utilities</td>
<td>18</td>
<td>−0.930</td>
<td>−1.65*</td>
<td>−0.96</td>
<td>−1.42</td>
</tr>
<tr>
<td>Total</td>
<td>651</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level

Socially responsible indices: Wealth effects, determinants and mediating factors
Table 26: Event study results (via Patell t-test) partitioned into super sectors – ICB level 2

This table presents event study results partitioned into super sectors – ICB level 2. N represents the number of firms for each industry. The t-statistic of [Patell, 1976] is reported in this table.

<table>
<thead>
<tr>
<th>Industry classification</th>
<th>N</th>
<th>0</th>
<th>0, +1</th>
<th>–1, +1</th>
<th>–2, +2</th>
<th>–5, +5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobiles &amp; Parts</td>
<td>19</td>
<td>-0.32</td>
<td>0.21</td>
<td>0.73</td>
<td>-0.18</td>
<td>1.18</td>
</tr>
<tr>
<td>Banks</td>
<td>31</td>
<td>2.17**</td>
<td>0.62</td>
<td>0.65</td>
<td>1.02</td>
<td>1.75*</td>
</tr>
<tr>
<td>Basic Resources</td>
<td>22</td>
<td>-0.22</td>
<td>1.12</td>
<td>1.17</td>
<td>0.08</td>
<td>1.05</td>
</tr>
<tr>
<td>Chemicals</td>
<td>33</td>
<td>0.67</td>
<td>0.71</td>
<td>0.20</td>
<td>-0.60</td>
<td>-0.77</td>
</tr>
<tr>
<td>Construct. &amp; Material</td>
<td>24</td>
<td>-1.52</td>
<td>-1.02</td>
<td>-0.18</td>
<td>0.27</td>
<td>-0.68</td>
</tr>
<tr>
<td>Financial Services</td>
<td>34</td>
<td>-2.55**</td>
<td>-1.59</td>
<td>-1.44</td>
<td>-1.21</td>
<td>0.51</td>
</tr>
<tr>
<td>Food &amp; Beverage</td>
<td>20</td>
<td>0.46</td>
<td>1.70*</td>
<td>1.71*</td>
<td>1.17</td>
<td>0.39</td>
</tr>
<tr>
<td>Healthcare</td>
<td>46</td>
<td>1.39</td>
<td>1.25</td>
<td>1.43</td>
<td>0.48</td>
<td>0.90</td>
</tr>
<tr>
<td>Industrial Goods &amp;</td>
<td>115</td>
<td>-0.08</td>
<td>-2.56**</td>
<td>-1.31</td>
<td>-2.14**</td>
<td>-1.57</td>
</tr>
<tr>
<td>Insurance</td>
<td>20</td>
<td>-1.08</td>
<td>-1.17</td>
<td>0.36</td>
<td>-0.34</td>
<td>-1.00</td>
</tr>
<tr>
<td>Media</td>
<td>41</td>
<td>0.22</td>
<td>0.15</td>
<td>-0.58</td>
<td>-0.63</td>
<td>-0.48</td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td>10</td>
<td>0.53</td>
<td>0.03</td>
<td>0.34</td>
<td>0.25</td>
<td>1.63</td>
</tr>
<tr>
<td>Personal &amp; Household</td>
<td>39</td>
<td>0.45</td>
<td>0.46</td>
<td>0.34</td>
<td>-0.48</td>
<td>0.89</td>
</tr>
<tr>
<td>Real Estate</td>
<td>40</td>
<td>1.72*</td>
<td>-0.31</td>
<td>-0.94</td>
<td>-0.09</td>
<td>1.51</td>
</tr>
<tr>
<td>Retail</td>
<td>17</td>
<td>-1.31</td>
<td>-1.33</td>
<td>-0.42</td>
<td>-1.05</td>
<td>-0.84</td>
</tr>
<tr>
<td>Technology</td>
<td>82</td>
<td>-1.34</td>
<td>-1.34</td>
<td>-1.25</td>
<td>-2.07**</td>
<td>-2.67***</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>16</td>
<td>-1.34</td>
<td>-0.75</td>
<td>-0.12</td>
<td>-0.58</td>
<td>0.51</td>
</tr>
<tr>
<td>Travel &amp; Leisure</td>
<td>24</td>
<td>0.24</td>
<td>0.77</td>
<td>0.08</td>
<td>0.02</td>
<td>-0.28</td>
</tr>
<tr>
<td>Utilities</td>
<td>18</td>
<td>-1.65*</td>
<td>-0.96</td>
<td>-1.42</td>
<td>-2.01**</td>
<td>-1.53</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>651</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level

As these results are largely aggregate in nature, and in order to understand further the underlying drivers of these results, we partition further our sample to their super-sector group (ICB level 2). This level of classification partitions our sample into 19 super-sectors; Automobiles & Parts, Banks, Basic Resources, Chemicals, Construction & Materials, Financial Services, Food & Beverage, Healthcare, Industrial Goods & Services, Insurance,
Media, Oil & Gas, Personal & Household Goods, Real Estate, Retail, Technology, Telecommunications, Travel & Leisure, and Utilities.

Due to the obviously greater number of sector groups involved in this analysis, we present the event study results for this next section according to each of the three standard test statistics used in this chapter: the t-statistic of Patell (1976) in Table 26 and Boehmer et al. (1991) in Table 27; and the z-statistic of the Wilcoxon sign-rank test in Table 28.
Table 27: Event study results (via Boehmer t-test) partitioned into super sectors – ICB level 2

This table presents event study results partitioned into super sectors – ICB level 2. N represents the number of firms for each industry. The t-statistic of Boehmer et al. (1991) is reported in this table.

<table>
<thead>
<tr>
<th>Industry classification</th>
<th>N</th>
<th>0</th>
<th>0, +1</th>
<th>–1, +1</th>
<th>–2, +2</th>
<th>–5, +5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobiles &amp; Parts</td>
<td>19</td>
<td>-0.25</td>
<td>0.20</td>
<td>0.57</td>
<td>-0.15</td>
<td>1.07</td>
</tr>
<tr>
<td>Banks</td>
<td>31</td>
<td>2.40**</td>
<td>0.68</td>
<td>0.65</td>
<td>1.05</td>
<td>1.37</td>
</tr>
<tr>
<td>Basic Resources</td>
<td>22</td>
<td>-0.26</td>
<td>1.57</td>
<td>1.39</td>
<td>0.07</td>
<td>0.97</td>
</tr>
<tr>
<td>Chemicals</td>
<td>33</td>
<td>0.73</td>
<td>0.74</td>
<td>0.24</td>
<td>-0.64</td>
<td>-0.88</td>
</tr>
<tr>
<td>Construct. &amp; Material</td>
<td>24</td>
<td>-1.14</td>
<td>-1.00</td>
<td>-0.15</td>
<td>0.24</td>
<td>-0.63</td>
</tr>
<tr>
<td>Financial Services</td>
<td>34</td>
<td>-3.11***</td>
<td>-2.22**</td>
<td>-1.69*</td>
<td>-1.41</td>
<td>0.47</td>
</tr>
<tr>
<td>Food &amp; Beverage</td>
<td>20</td>
<td>0.69</td>
<td>1.80*</td>
<td>1.80*</td>
<td>1.44</td>
<td>0.45</td>
</tr>
<tr>
<td>Healthcare</td>
<td>46</td>
<td>1.39</td>
<td>1.38</td>
<td>1.85*</td>
<td>0.63</td>
<td>0.97</td>
</tr>
<tr>
<td>Industrial Goods &amp;</td>
<td>115</td>
<td>-0.09</td>
<td>-1.13</td>
<td>-0.68</td>
<td>-0.98</td>
<td>-0.98</td>
</tr>
<tr>
<td>Insurance</td>
<td>20</td>
<td>-1.39</td>
<td>-1.22</td>
<td>0.33</td>
<td>-0.32</td>
<td>-0.92</td>
</tr>
<tr>
<td>Media</td>
<td>41</td>
<td>0.37</td>
<td>0.22</td>
<td>-0.84</td>
<td>-0.76</td>
<td>-0.53</td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td>10</td>
<td>0.72</td>
<td>0.07</td>
<td>0.67</td>
<td>0.41</td>
<td>1.83*</td>
</tr>
<tr>
<td>Personal &amp; Household</td>
<td>39</td>
<td>0.42</td>
<td>0.46</td>
<td>0.31</td>
<td>-0.52</td>
<td>0.91</td>
</tr>
<tr>
<td>Real Estate</td>
<td>40</td>
<td>1.57</td>
<td>-0.35</td>
<td>-0.84</td>
<td>-0.10</td>
<td>1.85*</td>
</tr>
<tr>
<td>Retail</td>
<td>17</td>
<td>-2.21**</td>
<td>-1.47</td>
<td>-0.55</td>
<td>-1.20</td>
<td>-0.92</td>
</tr>
<tr>
<td>Technology</td>
<td>82</td>
<td>-1.76*</td>
<td>-1.64</td>
<td>-1.58</td>
<td>-2.66***</td>
<td>-2.85***</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>16</td>
<td>-2.32**</td>
<td>-0.94</td>
<td>-0.11</td>
<td>-0.49</td>
<td>0.60</td>
</tr>
<tr>
<td>Travel &amp; Leisure</td>
<td>24</td>
<td>0.24</td>
<td>0.64</td>
<td>0.06</td>
<td>0.02</td>
<td>-0.24</td>
</tr>
<tr>
<td>Utilities</td>
<td>18</td>
<td>-3.56***</td>
<td>-1.43</td>
<td>-2.04**</td>
<td>-2.87***</td>
<td>-1.80*</td>
</tr>
<tr>
<td>Total</td>
<td>651</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level

From Table 26, 27 and 28, we report the following super-sector groups: Banks, Basic Resources, Food & Beverage, Health Care, and Real Estate to experience significant and positive market reactions. While in contrast the Financial Services, Industrial Goods & Services, Retail, and Technology super-sectors to experience significant negative market reactions.
Table 28: Event study results (via Wilcoxon sign rank test) partitioned into super sectors - ICB level 2

This table presents event study results partitioned into super sectors – ICB level 2. N represents the number of firms for each industry. The z-statistic of the Wilcoxon signed test is reported in this table.

<table>
<thead>
<tr>
<th>Industry classification</th>
<th>N</th>
<th>0</th>
<th>0, +1</th>
<th>-1, +1</th>
<th>-2, +2</th>
<th>-5, +5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobiles &amp; Parts</td>
<td>19</td>
<td>-0.68</td>
<td>-0.12</td>
<td>0.28</td>
<td>-0.16</td>
<td>0.56</td>
</tr>
<tr>
<td>Banks</td>
<td>31</td>
<td>2.14**</td>
<td>0.74</td>
<td>-0.27</td>
<td>0.16</td>
<td>0.84</td>
</tr>
<tr>
<td>Basic Resources</td>
<td>22</td>
<td>-1.06</td>
<td>1.67*</td>
<td>1.35</td>
<td>0.24</td>
<td>1.15</td>
</tr>
<tr>
<td>Chemicals</td>
<td>33</td>
<td>1.26</td>
<td>0.54</td>
<td>-0.28</td>
<td>-1.38</td>
<td>-1.13</td>
</tr>
<tr>
<td>Construct. &amp; Material</td>
<td>24</td>
<td>-0.34</td>
<td>-0.77</td>
<td>-0.31</td>
<td>0.60</td>
<td>-0.60</td>
</tr>
<tr>
<td>Financial Services</td>
<td>34</td>
<td>-2.69***</td>
<td>-1.58</td>
<td>-1.63</td>
<td>-1.12</td>
<td>0.52</td>
</tr>
<tr>
<td>Food &amp; Beverage</td>
<td>20</td>
<td>0.75</td>
<td>1.34</td>
<td>1.42</td>
<td>1.05</td>
<td>1.19</td>
</tr>
<tr>
<td>Healthcare</td>
<td>46</td>
<td>0.69</td>
<td>1.31</td>
<td>1.60</td>
<td>0.28</td>
<td>0.69</td>
</tr>
<tr>
<td>Industrial Goods &amp;</td>
<td>115</td>
<td>-0.70</td>
<td>-0.65</td>
<td>0.35</td>
<td>0.21</td>
<td>-0.33</td>
</tr>
<tr>
<td>Insurance</td>
<td>20</td>
<td>-1.31</td>
<td>-0.75</td>
<td>0.86</td>
<td>-0.15</td>
<td>-0.93</td>
</tr>
<tr>
<td>Media</td>
<td>41</td>
<td>0.23</td>
<td>0.24</td>
<td>-0.84</td>
<td>-0.84</td>
<td>-0.65</td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td>10</td>
<td>0.46</td>
<td>0.25</td>
<td>1.58</td>
<td>-0.25</td>
<td>0.97</td>
</tr>
<tr>
<td>Personal &amp; Household</td>
<td>39</td>
<td>0.35</td>
<td>0.66</td>
<td>0.42</td>
<td>-0.77</td>
<td>0.89</td>
</tr>
<tr>
<td>Real Estate</td>
<td>40</td>
<td>1.87*</td>
<td>-0.46</td>
<td>-0.66</td>
<td>0.27</td>
<td>2.00**</td>
</tr>
<tr>
<td>Retail</td>
<td>17</td>
<td>-2.49**</td>
<td>-1.44</td>
<td>-0.83</td>
<td>-1.25</td>
<td>-1.44</td>
</tr>
<tr>
<td>Technology</td>
<td>82</td>
<td>-2.26***</td>
<td>-2.20**</td>
<td>-2.16**</td>
<td>-2.85***</td>
<td>-2.91***</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>16</td>
<td>-2.33**</td>
<td>-1.45</td>
<td>-0.16</td>
<td>-1.09</td>
<td>0.00</td>
</tr>
<tr>
<td>Travel &amp; Leisure</td>
<td>24</td>
<td>0.06</td>
<td>0.49</td>
<td>-0.51</td>
<td>-0.06</td>
<td>-0.14</td>
</tr>
<tr>
<td>Utilities</td>
<td>18</td>
<td>-2.50**</td>
<td>-1.55</td>
<td>-2.20**</td>
<td>-2.37**</td>
<td>-1.85*</td>
</tr>
</tbody>
</table>

* Significant at the 10% level, **significant at the 5% level, ***significant at the 1% level
Table 29: Summary of event study results – across industry and super-sectors

Where N denotes sample size employed in event study, ‘weak’ indicates two or less observations of significant test statistics, dashes (–) represent non-significant results, and CAR is the cumulative abnormal return over 5 days.

<table>
<thead>
<tr>
<th>Industry – ICB level 1</th>
<th>N</th>
<th>Direction and significance</th>
<th>CAR %</th>
<th>Super-sectors – ICB level 2</th>
<th>N</th>
<th>Direction and significance</th>
<th>CAR %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Materials</td>
<td>55</td>
<td>–</td>
<td>(0.656)</td>
<td>Basic Resources</td>
<td>22</td>
<td>Positive and significant (weak)</td>
<td>(0.948)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chemicals</td>
<td>33</td>
<td>–</td>
<td>(0.462)</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>78</td>
<td>–</td>
<td>(0.515)</td>
<td>Automobiles &amp; Parts</td>
<td>19</td>
<td>–</td>
<td>(0.288)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Food &amp; Beverage</td>
<td>20</td>
<td>Positive and significant</td>
<td>(0.981)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Personal &amp; House hold Goods</td>
<td>39</td>
<td>–</td>
<td>(0.386)</td>
</tr>
<tr>
<td>Consumer Services</td>
<td>82</td>
<td>–</td>
<td>(-0.371)</td>
<td>Media</td>
<td>41</td>
<td>–</td>
<td>(-0.439)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retail</td>
<td>17</td>
<td>Negative and significant (weak)</td>
<td>(-0.504)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Travel &amp; Leisure</td>
<td>24</td>
<td>–</td>
<td>(-0.161)</td>
</tr>
<tr>
<td>Financials</td>
<td>125</td>
<td>–</td>
<td>(-0.013)</td>
<td>Banks</td>
<td>31</td>
<td>Positive and significant</td>
<td>(0.516)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Financial Services</td>
<td>34</td>
<td>Negative and significant</td>
<td>(-0.379)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Insurance</td>
<td>20</td>
<td>–</td>
<td>(-0.529)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Real Estate</td>
<td>40</td>
<td>Positive and significant</td>
<td>(0.145)</td>
</tr>
<tr>
<td>Healthcare</td>
<td>46</td>
<td>Positive and significant (weak)</td>
<td>(0.457)</td>
<td>Healthcare</td>
<td>46</td>
<td>Positive and significant (weak)</td>
<td>(0.457)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Health Care Equipment &amp; Services (level 3)</td>
<td>[18]</td>
<td>–</td>
<td>(0.186)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Pharmaceuticals &amp; Biotechnology (level 3)</td>
<td>[28]</td>
<td>Positive and significant</td>
<td>(0.632)</td>
</tr>
<tr>
<td>Industrials</td>
<td>139</td>
<td>Negative and significant</td>
<td>(-0.294)</td>
<td>Construction &amp; Material</td>
<td>24</td>
<td>–</td>
<td>(-0.401)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Industrial Goods &amp; Services</td>
<td>115</td>
<td>Negative and significant (weak)</td>
<td>(-0.272)</td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td>10</td>
<td>Positive and significant (weak)</td>
<td>(0.816)</td>
<td>Sample size too small for sector analysis</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>82</td>
<td>Negative and significant</td>
<td>(-0.467)</td>
<td>Technology</td>
<td>82</td>
<td>Negative and significant</td>
<td>(-0.467)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Software &amp; Computer Services (level 3)</td>
<td>[45]</td>
<td>Negative and significant</td>
<td>(-0.239)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Technology Hardware &amp; Equipment (level 3)</td>
<td>[37]</td>
<td>Negative and significant</td>
<td>(-0.746)</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>16</td>
<td>Negative and significant (weak)</td>
<td>(-0.527)</td>
<td>Sample size too small for sector analysis</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilities</td>
<td>18</td>
<td>Negative and significant</td>
<td>(-0.930)</td>
<td>Sample size too small for sector analysis</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>651</td>
<td>Total</td>
<td></td>
<td>Total</td>
<td>651</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 29 provides a summary of our results for this section. In particularly we contrast results at the industry level (ICB-level 1) with their underlying performances at the super-sector level (ICB - level 2). Due to the varying degrees of statistical strength, we further identify industries/super-sectors/or sectors with ‘weak’ significance as those with 2 or less observations of significant event windows.

Table 29 reveals industry results are driven to some degree by their underlying super-sector performances. For instance, the significant and negative abnormal returns of Industrials (ICB 2000 – level 1) can be explained in some part by the negative effects of Industrial Goods & Services – significant but weak – (ICB 2700 – level 2), rather than the non-significant effects experienced by the Construction & Materials (ICB 2350 – level 2) super-sector.

Analysing the super-sector level becomes particularly advantageous because it reveals underlying performances that may have been masked by their larger aggregate group. For instance, while Consumer Services (ICB 5000 – level 1) experienced non-significant abnormal returns, the underlying Retail (ICB 5300 – level 2) super-sector experienced significant (but weak) negative abnormal returns. All other underlying super-sectors of Media (ICB 5500 – level 2) and Travel and Leisure (ICB 5700 – level 2) was consistent with their aggregate industry group. Further, the non-significant abnormal returns of Financials (ICB 8000 – level 1) can be explained by the mixed results experienced by their underlying super-sectors; for instance the positive and significant abnormal returns of Banks (ICB 8300 – level 2) and Real Estate (ICB 8600 – level 2), and the negative abnormal returns of Financial Services (ICB 8700 – level 2). Finally while Consumer Goods (ICB 3000 – level 1) experienced non-significant abnormal returns, the underlying Food & Beverage (ICB 3500 – level 2) experienced significant and positive abnormal returns. All other remaining underlying super-sectors to this industry group; Automobiles and Parts (ICB 3300 – level 2)
and Personal and Household Goods (ICB 3700 – level 2) was consistent with their aggregate performance.

As the industry group of Technology (ICB 9000 – level 1) is ultimately the same group at their super-sector level (that is, ‘Technology’ at ICB level 1 is the same group of firms as ‘Technology’ at ICB level 2), we partition their sector classifications one level further (ICB – level 3). This divides ‘Technology’ into smaller sectors groups, consequently revealing negative results at the aggregate level are driven by both Software & Computer Services (ICB 9530 – level 3) and Technology Hardware & Equipment (ICB 9570 – level 3).

Under a similar rationale, Health Care (ICB 4000 – level 1) is further partitioned into sector classifications. This reveals the positive abnormal performance at the aggregate level are attributed mostly to the Pharmaceuticals & Biotechnology sector (ICB 4570 – level 3), despite the non-significant effects of Health Care Equipment & Services (ICB 4530 – level 3).

For all other industries where industry and super-sector groups are identical, an analysis at the higher sector level of classification is not undertaken due to the restrictions of sample sizes, namely the industries of Oil & Gas (n = 10), Telecommunications (n = 16) and the Utilities (n = 18).

We end this section with a brief discussion on the economic interpretation of the underlying super-sectors/sectors. The largest significant movement in market value is experienced by Food & Beverage of 0.981 % (median 0.576 %), while the lowest market movement is experienced by Technology Hardware and Equipment of –0.746 % (median –0.532 %). These figures in their respective super-sectors/sectors represent a gain in market value of USD $126.2 million and a lost in market value of USD $58.6 million on average per firm. Given
that both industries can represent the varying extremes of consumer sensitivity (high consumer perception - Food & Beverage, and low consumer perception - Technology Hardware and Equipment), our results in this section can be treated as a prelude to the effects of consumer sensitivity. In the next section we formally test this hypothesis.

5.4.2 Univariate test

Table 30 provides the results of the univariate test based on the full sample (that is the uncategorised sample of firms) partitioned into either the ‘consumer sector group’ or ‘industry sector group’. We report mean figures for 5-DAY CAR (cumulative abnormal returns over five days) and mean figures for firm-level characteristics across each group. Testing the differences of the means reveals the ‘consumer sector group’ relative to the ‘industry sector group’ has significantly higher size, lower leverage, higher payout, and higher asset turnover, and in particular relation to this chapter higher abnormal returns.

This latter result is consistent with prior research (for example, Curcio and Wolf, 1996; Hoepner, 2010; Lev et al., 2010), and our earlier developed hypothesis; in which consumer orientated industries (consumer sector group) will have higher abnormal returns compared to their non-consumer orientated counterparts (that is the industry sector group). Further, while the mean abnormal return for the former group was positive (+0.4 %), the latter group recorded in contrast negative abnormal returns (–0.9 %). Differences in mean abnormal returns between the two sector groups are significant at the 1 % level.

Note: we do have hypotheses in relation to consumer sensitivity to confirm these results.
Table 30: Results of univariate test of firm characteristics between the ‘consumer sector group’ and ‘industry sector group’

This table provides mean figures of firm-level characteristics, presented first at the full sample (n = 651) and then partitioned further into either the ‘consumer sector group’ (n = 298) or ‘industry sector group’ (n = 353) classification. 5-DAY CAR are cumulative abnormal returns surrounding market reaction to firm inclusion to the FTSE4Good Global index. Test of the differences are based on a two-tailed t-test and a Wilcoxon sign rank test. Please refer to table 20 for firm variable definitions.

<table>
<thead>
<tr>
<th></th>
<th>Full sample (n = 651)</th>
<th>Consumer sector group (n = 298)</th>
<th>Industry sector group (n = 353)</th>
<th>t-stat</th>
<th>Wilcoxon (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-DAY CAR</td>
<td>−0.001</td>
<td>0.004</td>
<td>-0.009</td>
<td>2.925 ***</td>
<td>0.009 ***</td>
</tr>
<tr>
<td>SIZE</td>
<td>9.171</td>
<td>9.687</td>
<td>8.919</td>
<td>3.291 ***</td>
<td>0.001 ***</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.257</td>
<td>0.241</td>
<td>0.272</td>
<td>-1.987 **</td>
<td>0.011 **</td>
</tr>
<tr>
<td>ROE</td>
<td>17.031</td>
<td>26.316</td>
<td>8.966</td>
<td>0.378</td>
<td>0.642</td>
</tr>
<tr>
<td>PAYOUT</td>
<td>0.365</td>
<td>0.353</td>
<td>0.362</td>
<td>0.961</td>
<td>0.023 **</td>
</tr>
<tr>
<td>CASH</td>
<td>0.140</td>
<td>0.144</td>
<td>0.135</td>
<td>0.501</td>
<td>0.556</td>
</tr>
<tr>
<td>ASSET TURNOVER</td>
<td>0.850</td>
<td>0.833</td>
<td>0.843</td>
<td>0.865</td>
<td>0.011 **</td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.126</td>
<td>0.132</td>
<td>0.119</td>
<td>0.559</td>
<td>0.320</td>
</tr>
</tbody>
</table>

*Significant at the 1% level, **significant at the 5% level.

5.4.3 OLS regression results

In this section we examine whether consumer sensitivity mediates the relationship between market reaction and announcements of CSR commitment. In particular we investigate the explanatory power of the Industry Sector Group dummy variable via stepwise OLS analysis, first as a univariate regression (Equation 1), and then with the inclusion of firm level control variables (Equation 2) and our measures of slack resources (Equation 3). All regressions presented are robust for country and time-series effects, while the f-statistic is statistically significant – thus indicating all equations and their collective variables are appropriate in
explaining the cross-sectional determinants of CAR. Finally we correct standard errors (and their associated p-values) for heteroskedasticity using the Newey and West (1987) adjustment. We note results are largely unchanged from their OLS estimates.

Table 31: OLS regression results – Equation 1, 2 and 3

This table presents the results of our stepwise OLS estimates of Equations 5, 6 and 7 on 5-DAY CAR surrounding announcement of inclusion to the FTSE4Good Global index. Equation 5 is a univariate regression of the ‘industry sector group’ dummy variable; Equation 6 includes firm-level control variables of size, ROE, asset turnover, leverage and MTB; Equation 7 considers our financial slack variables of CAPEX, PAYOUT and cash holdings. All equations control for both country and year fix effects. We present t-statistics derived from standard OLS estimates, while corresponding p-values (in parenthesis) are derived from Newey and West (1987) heteroskedasticity consistent standard errors.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Equation 5</th>
<th></th>
<th></th>
<th>Equation 6</th>
<th></th>
<th></th>
<th>Equation 7</th>
<th></th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-stat</td>
<td></td>
<td>Coefficient</td>
<td>t-stat</td>
<td></td>
<td>Coefficient</td>
<td>t-stat</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>0.021</td>
<td>1.682***</td>
<td>-0.011</td>
<td>-0.518</td>
<td>0.015</td>
<td>0.810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.003</td>
<td></td>
<td>2.017**</td>
<td>0.000</td>
<td>0.261</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>-0.003</td>
<td></td>
<td>-0.288</td>
<td>-0.015</td>
<td>-1.463</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>0.000</td>
<td></td>
<td>0.042</td>
<td>0.000</td>
<td>0.820</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASSET TURNOVER</td>
<td>0.000</td>
<td></td>
<td>-0.094</td>
<td>0.000</td>
<td>-0.202</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MTB</td>
<td>0.000</td>
<td></td>
<td>0.154</td>
<td>0.000</td>
<td>0.764</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPEX</td>
<td></td>
<td></td>
<td></td>
<td>0.002</td>
<td>0.060</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAYOUT</td>
<td>-0.002</td>
<td></td>
<td>-2.012***</td>
<td>-0.020</td>
<td>-1.264</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CASH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDUSTRY SECTOR GROUP</td>
<td>-0.009</td>
<td>-2.028**</td>
<td>-0.007</td>
<td>-1.722**</td>
<td>-0.007</td>
<td>-2.021***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Country-fixed effects     | Yes        |          |              | Yes        |          |              | Yes        |
Time-fixed effects         | Yes        |          |              | Yes        |          |              | Yes        |
N                          | 655        |          |              | 586        |          |              | 453        |
F-statistic                | 2.451      |          |              | 2.328      |          |              | 1.983      |
Adj. R²                    | 0.048      |          |              | 0.060      |          |              | 0.063      |

*Significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level
From Table 31 we report the *Industry Sector Group* dummy variable to be statistically significant across all stepwise cross-sectional regressions. Further our firm level control variables of *Size* and *Payout* are found to be statistically significant. All other firm-level explanatory variables, and measures of financial slack are – in contrast to previous findings and prepositions in the literature – reported to be non-significant. We report these results in turn.

Our principal variable *Industry Sector Group* is found to have a significant and negative relationship with CSR commitment (about 0.7 % in Equation 6 and 7). In other words, firms classified as low sensitivity to the end consumer are punished by the market for their choice to commit to CSR. This result is consistent with our formalised hypothesis, in which CSR engaged in industries primarily serving other industries - including Industrials, Utilities, and Basic Materials - are not able to attain the same consumer related benefits, and thus are associated with negative market reactions to announcements of CSR commitment.

Moreover our results are consistent with studies that show CSR effects to CFP are influenced to a significant degree by an industry’s high proximity to the end consumer (Hoepner et al., 2010); industries primarily providing non-consumer products (Hung and Wang, 2014); or industries with high consumer perception, defined as producing goods or services primarily for the individual consumer (Lev et al., 2010). Further we lend evidence to CSR prevalence in industries with greater competition (Sen and Bhattacharya, 2004; Fernández-Kranz and Santaló, 2010), or advertising intensity (Fisman et al., 2005) – both analogous to industries with high consumer contact. Overall our results can be interpreted as evidence industries with low consumer sensitivity to benefit most from the contrary choice of corporate social *irresponsibility*, or at least the absence of CSR.
We find Size in Equation 6 to be positive and significant. Thus we find consistent with the literature, shareholders in larger firms perceive CSR commitment as a value increasing activity (Clacher and Hagendorff, 2012; Doh et al., 2010). Our result is aligned with the notion that larger firms are better able to participate in CSR and thus maximise value from such an engagement (Clacher and Hagendorff, 2012). Moreover due to their greater visibility and market presence, which is synonymous with greater political pressures and public scrutiny – all of which increases with firm size - can lead these firms to be more inclined to participate in CSR (Roberts, 1992; Doh et al., 2010). For instance larger firms who engage in social programs will face less risks related to costly government intervention, and non-compliance cost and fines (Adams and Hardwick, 1998). We note, however, despite having the correct sign our Size variable in Equation 7 loses its statistical significance once we control for financial slack.

From Equation 7, we report dividend Payout to be negative and significant to CSR commitment. Our results thus support the premise that investors care about dividend yields, as CSR can be perceived as a subtraction from future dividend income. Indeed corporate managers are more willing to increase dividends than decrease dividends, as the latter decision can provide negative signals about the future prospects of the firm (Lintner, 1956). In addition, as our coefficient for this variable is negative in sign, we provide results consistent with the notion that high-dividend firms (traditionally considered less financially constrained) represent greater financial constraints (as per Kaplan and Zingales, 1997; Cleary, 1999; Kadapakkam et al., 1998). Thus like Surroca and Tribó (2009) we find firms with high-dividend polices to impede the successful engagement of CSR.

Collectively our explanatory variables, including firm-level control variables, and measures of financial slack (with the exception of Payout) have continued to remain insignificant, and
in some cases have lost their original statistical significance altogether (as in the case of the Size variable). We highlight further, results, contrary to the current literature’s standing that firm size (Roberts, 1992; Doh et al., 2010), leverage (Clacher and Hagendorff, 2012; McGuire et al., 1988), profitability (Ullmann, 1985; McGuire et al., 1988; Adams and Hardwick, 1998; Clacher and Hagendorff, 2012), growth (Clacher and Hagendorff, 2012; Bird et al., 2007), and slack resources (Arora and Dharwadkar, 2011; Waddock and Graves, 1997) are important explanatory variables to the CSR effect. We report in contrast, the Industry Sector Group dummy variable continues to be significant and negative. Thus, it appears the effects of consumer sensitivity are responsible for the majority of market reaction to CSR commitment. In other words, this chapter provides evidence consumer sensitivity can mediate to a large, even overarching extent, the relationship between CSP and CFP.

5.5 Discussion and conclusion

Given the increasing public pressure on firms to engage in CSR activities, it is critical for existing research to be able to equip managers with an understanding on how CSR activities can be undertaken strategically. Following this line of motivation, our findings indicate corporate managers should implement more CSR in Banks, Real Estate, Food and Beverage, and the Pharmaceuticals and Biotechnology sub-sectors. And less CSR in the sub-sectors of Financial Services, Software & Computer Services, Technology Hardware & Equipment, Telecommunications and Utilities as – all else being equal – this decision will increase firm value. Moreover we find firms with low consumer sensitivity – that is those firms who primarily serve industry customers (including Iron & Steel, Building Materials & Fixtures, Commercial Vehicles & Trucks, Industrial Supplies, Pipelines, Heavy Construction, and Rail
Roads to name a few) – will, as a consequence of their trading environment be punished by the market for their CSR activities.

While our results are intuitive for academics and corporate managers, we stress caution to their interpretation due to a number of methodological issues. The first relates to statistical inferences from studies of small sample sizes. For instance in our event study, the industries of Telecommunications (n = 16), Oil & Gas (n = 10) and Utilities (n = 18) are characterised by small samples. A similar caution can be extended to our super-sector groups; for instance, Retail (n = 17), Health Care Equipment & Services (n = 18), and Basic Resources (n = 22). Despite these issues in samples sizes, our results stress the importance of assessing CSR value based on the context of each industry or sub-sector group. Future research can extend our analysis to larger datasets.

Second, although our construction of Industry Sector Group is based on the rationale of pre-existing literature (that is, Lev et al., 2010), the basis of our classification methodology is still inherently qualitative in nature. Thus evaluations of firms’ consumer sensitivity can be exposed to the subjective judgement of the researcher. Indeed while the author has attempted to employ more quantitative measures of consumer sensitivity (for example, those based on market concentration/differentiation – Herfindahl–Hirschman Index), we find due to the extensive global nature of our study, and the wide range of industries and sectors investigated, these proxies to be inaccurate and too noisy to differentiate high consumer perception from low consumer perception. A fruitful avenue for future research would see more robust methods (preferably quantitative) in classifying consumer sensitivity.

Our OLS cross-sectional regression reveals firms that primarily serve industrial consumers are adversely affected by their choice to engage in CSR. In fact, the mediation effect of
consumer sensitivity continues to remain statistically significant, despite all other explanatory variables reported to be insignificant. This result is especially provocative given our conclusions in Chapter 4 about the importance of firm-level considerations to the CSP–CFP link. Moreover, if we overlook the potential heterogeneity effect of CSR across industries, our thesis may have concluded based on our earlier event study (Chapter 3) and cross-sectional analyses (Chapter 4) that CSR engagement is largely a value-destroying exercise. With this negative effect more pronounced depending on a firm’s ability to afford social activities (high financial constraints versus low financial constraints) and the movements and trading behaviour of their institutional investors. Therefore we go beyond reporting an association between CSR and CFP, by identifying consumer sensitivity as the overarching mediating variable underlying CSP-CFP relationship.66

In addition, this chapter highlights that while previous studies may have controlled for ‘industry effects’ – which is the most popular control variable according to Margolis and Walsh (2001) – the vast majority of studies have only controlled for the industry effect on CFP, and not for the industry effect on the CSP–CFP relationship.67 These studies have therefore made the implicit assumption that the CSP–CFP relationship is homogeneous across industries (Hoepner et al., 2010). As our analysis in this chapter reveals to the contrary, previous studies based on multiple industry samples may need to be re-examined, or at least

66 In this chapter, while we find evidence the ‘industry sector group’ effect to explain the majority of our previous results, we must note this chapter does not include consideration of our institutional ownership variables due to a lack of sample sizes.

67 For instance, while stand-alone industry dummy variables (such as the ones used in our previous chapters) control for industry effects on CFP, unless for instance they are multiplied by the CSP variable, they do not explicitly control for the industry effects on the CSP–CFP relationship.
considered with greater caution. Although they have controlled for industry effects on CFP, they have failed to control for the distinctive industry effect on the CSP–CFP relationship.

Finally this chapter provides evidence that CSR can be justified from a shareholder-maximising perspective – on the condition that managers can associate these activities to higher customer satisfaction, and then in turn, higher corporate wealth.

Considering the results of this chapter, it is perhaps unsurprising to observe why “the lure of greater consumer profits have contributed significantly in recent years to the strengthening of the business case of CSR activity” (Sen and Bhattacharya, 2004). That is, a firm’s ability to create financial value from their CSR investment is heavily dependent on the ability to gain the trust and satisfaction of the end consumer.
Chapter 6: Conclusion
6.0 Introduction

At the heart of the CSR literature is a fundamental question of credibility: does higher CSP lead to higher CFP? Two key opposing hypotheses regarding this important credibility have emerged in the literature.

In the first hypothesis, the Friedman (1970) view argues business has “… one and only one social responsibility … to use its resources and to engage in activities designed to increase profits”. Indeed firms that undertake CSR may face higher restrictions to profitability due to activities ranging from community and philanthropy programs, the provision of employee day care and paid parental leave, and the diversion of resources to improve environmental efficiencies. Moreover, the cost of pursuing social missions is further compounded if firms are avoiding lucrative business opportunities because of ‘social’ concerns or norms, as this by default must result in a lower economic performance.

The second hypothesis, the stakeholder view, argues for a more optimistic scenario in which CSR can be a source of positive wealth effects. This is based on the condition that various stakeholders are managed with the overarching strategy of enhancing corporate value. For instance, investment in CSP can provide credible signals of higher reputation and brand loyalty, an ability to attract and retain the best managers and employees, and the aptitude to avoid costly disputes with surrounding communities.

The empirical literature reveals mixed findings regarding the CSP–CFP relationship; some studies find a positive relationship (Kempf and Osthoff, 2007; Galema et al., 2008; Fernandez-Izquierdo and Matallin-Saez, 2008; Gil-Bazo et al., 2010), others find a negative relationship (Geczy et al., 2005; Renneboog et al., 2008; Brammer et al., 2006), while yet others find a non-linear relationship (Barnett and Saloman, 2012; Wang et al., 2008).
Moreover, while meta-analysis reviews do generally indicate a positive relationship exists (Orlitzky et al., 2003; Margolis et al., 2009; Peloza, 2009) “probably; it depends” (Peloza, 2009), many reviewers admit its actual contribution to CFP is small.

The lack in ability to establish any strength or consistency in previous results can be attributed to “several important theoretical and empirical limitations” (McWilliams and Siegel, 2001). Common among them include ‘stakeholder mismatching’ (Wood and Jones, 1995), neglect of ‘contingency factors’ (for example, Ullmann, 1985), existence of ‘measurement errors’ (Waddock and Graves, 1997), bias from ‘omitted variables’ (Aupperle and Hatfield, 1985; Cochran and Wood, 1984; Ullmann, 1985) or as McWilliams and Siegel (2000) surmise an overall “flawed empirical analysis”.

Further, while there are numerous studies that analyse the CSP–CFP relationship based on long-term evaluations (see aforementioned meta-analyses for a review), we argue this is not an accurate test of how the market evaluates CSR. This is particularly the case because any long-term evaluation can be affected by a number of confounding factors unrelated to CSR (for example, business cycles, competition movements etc.). Given the market is arguably the final arbiter of whether CSR is evaluated as value enhancing (Clacher and Hagendorff, 2012), we focus our analysis on the market reaction to social activities strictly from a short-term perspective. In this we refer to the ‘social index effect’ – analysing how the underlying price of a firm changes upon its announcement of inclusion in the FTSE4Good Global Index. Such an analysis, if done correctly, can circumvent the common issues relating to confounding factors inherent in any long-term study. Thus in this thesis we begin our analysis with the underpinning of being able to isolate a reliable, validated, and significantly ‘clean’ measure of the CSR factor.
From here our thesis provides three empirical chapters; each investigates the wealth effects of social index inclusion based on differences in methodological perspectives. Before such an empirical analysis can proceed, however, our thesis must lay down the foundations necessary for this empirical undertaking. This is achieved in the first two chapters; Chapter 1 provides a background, key definitions, motivations and outlines our objectives; while Chapter 2 provides the neo-classical arguments underlying the relationship between CSP and CFP, which is then followed by a brief literature review of the major findings. With these chapters in the foreground, Chapters 3, 4 and 5 present our empirical analyses.

In Chapter 3, via an event study, we determine the shareholder wealth effects of announcements of social index inclusion. Chapter 4 explains sources of abnormal returns using OLS regression, which is hypothesised to be influenced by measures of financial constraints, as well as changes in institutional ownership and their trading behaviour. In regards to the latter hypothesis, we also address the endogeneity issue inherent in our institutional results. This analysis is achieved though propensity score matching (PSM). In our last empirical chapter, Chapter 5, we test the current implicit assumption that the CSR–CFP relationship is homogenous across industries. In this, our analysis is twofold. First, in order to identify differences across industries, we perform an event study partitioned at the industry level, and then we examine their performance at the super-sector level. In the second stage of our analysis, we test the mediating effects of consumer sensitivity. This is achieved by constructing the ‘industry sector group’ dummy variable. Our key results in this thesis according to each empirical chapter are summarised in the next section.
6.1 Summary of empirical findings

In Chapter 3 we find announcements of inclusion in the FTSE4Good Global Index are associated with significant and negative abnormal returns. Thus if social index inclusion is a proxy for high CSR activities, our study indicates that, on average, undertaking CSR is a value-destroying exercise. This result is robust to variations to the estimation window, and is consistent with subsequent abnormal volume analyses. Partitioning our results to the three largest countries by total sample reveals further contrasting differences; firms in the US and UK experience significant and negative abnormal returns, while firms in Japan experience significant and positive abnormal returns.

In Chapter 4 we explain the determinants of market reaction using firm-specific characteristics and other market-wide factors. Employing measures of financial constraint and a set of control variables reveals negative abnormal returns are significantly associated with the following: firms with high dividend payments, as CSR may impose additional risk to future income (Rakotomavo, 2012); firms with low financial performance, as CSR may incur additional resources that the firm cannot spare (Roberts, 1992); firms with high cash holdings, as CSR may be perceived to be inappropriate due to costly external financing (Dittmar et al., 2003), volatile cash flows (Opler et al., 1999) or greater financial constraints (Almeida et al., 2002); firms with high asset growth, as CSR may impede firms who tend to reinvest profits through expansion or acquisition (Penrose, 1995); and firms with high commitment to capital expenditure, as these firms with high financial constraints (Korajczyk and Levy, 2003), have been punished by the market for showing additional commitment of scarce resources.
In parallel we also examine the mediating role of institutional investors, and subsequently reveal negative abnormal returns are significantly associated with institutional selling (current versus to post quarterly holdings) and firms with high investor turnover (indicative of institutional short-term or myopic behaviour). In robustness analysis we control for endogeneity problems inherent in our institutional results, and find – all else being equal – institutional owners are indeed punishing firms found to be engaged in CSR activities.

In Chapter 5 we partition our results at the industry and sub-sector level, and find a mosaic of differences in the CSP–CFP relationship. For instance, while the Financials and Health Care industries are found to experience positive market reactions, the industries of Technology, Telecommunications and Utilities experience negative market reactions instead. Further analysis reveals the underlying performances of the aggregate industry group. For instance, while we find the Financials industry experiences positive abnormal returns, this is driven mostly by the underlying Banks and Real Estate super-sectors, and is persistent despite the negative influences of Financial Service.

Moreover when we classify firms into ‘low consumer sensitive’ or ‘high consumer sensitive’, we find those classified as primarily serving industry consumers are adversely affected by their choice to engage in CSR. In fact, once the mediating effects of consumer sensitivity are controlled for (plus country and time-fix effects), we find all other explanatory variables cease to be statistically significant. This result is especially provocative given our conclusions in Chapter 4 regarding the importance of firm-level considerations of the CSP–CFP link.
Thus we go beyond reporting an association between CSR and CFP by identifying that consumer sensitivity is the overarching mechanism underlying most of our prior findings.  

6.2 Research implications

In the next section we outline the key research implications of our thesis.

Overall, we report results contrary to the meta-analysis reviews that show a small but positive relationship between CSP and CFP. In other words, our evidence is consistent with the notion that CSR is a “wasteful discretionary act of management” (Brammer and Pavelin, 2006) and in its extreme tantamount to managers “approaching fraud” (Friedman, 1970). Thus from a practical and general perspective corporate managers should decrease their investment in CSR, as these activities will, on average, harm firm value. Moreover managers should carefully note the social criteria used by FTSE4Good or similar to assess social performance, as it’s clear the market reacts significantly to new information conveyed by these institutions.

In follow up analysis, we find this negative outcome to be particularly pronounced under certain financial conditions and dependent on the trading behaviour of institutional owners. For instance, drawing upon the literature of slack resource theory, we find results revolve around a common theme – one of affordability and discretion. That is, when firms have little in the way of financial constraints and are comfortably (wealthily) positioned, shareholders seem to provide managers greater latitude to allocate resources to CSR. In addition, we draw on the literature of institutional behaviour to find evidence of the existence of a short-term or myopic motivation. That is, managers pursue short-term gains because their compensation, 

68 Note out industry analysis did not include our institutional ownership variables due to the restrictions on sample size.
job security and advancement are tied to the need to continually show improved results. If the motivation of these institutional investors is accurate, we provide further evidence confirming that CSR is a long-term investment (assuming benefits are accrued in the long term), and thus more likely to impose costs that impact short-term earnings in a negative rather than positive way. Managers evaluating consequences of CSR decisions can thus use these contingent conditions of financial constraint and institutional behaviours as important precursors to the expected market reaction to CSR.

Our evidence also lends support to the notion that if managers want their stock to remain attractive to institutional shareholders, they must take into consideration the concerns of their institutional owners (Graves and Waddock, 1994). This line of rationale can be extended to the strategic viewpoint of CSR advocates. For instance, if managers are avoiding CSR investment because they are afraid stock prices will fall, advocates wishing to increase CSR activity at the firm level should then prioritise their focus on the trading behaviour of institutional investors. By convincing institutional investors of the likely positive wealth effects, they may able to alleviate this important CSR constraint, and thus encourage business environments more prone to increases in CSR investment.

Moreover in relation to possible sources of social activities, we find evidence to assist firms with the strategic use of CSR activities. That is, we provide managers the knowledge and foresight to predict varying impacts to the CSR–CFP relationship, and consequently allow more appropriate CSR strategies to be designed in their own respective industries or underlying sectors. For example, we find corporate managers should implement more CSR in the sectors of Basic Resources, Food & Beverage, Banks, Real Estate, Pharmaceuticals & Biotechnology, and Oil & Gas. The contrary choice of less CSR in Financial Services, Industrial Goods & Services, Software & Computer Services, Technology Hardware &
Equipment, Telecommunications and Utilities will – all as all else being equal – increase firm value.

Lastly we explain the heterogeneity in our industry results. We conclude that industry sensitivity to the end consumer has an overarching mediating effect on the value outcome of CSR. Thus we demonstrate CSR activities can indeed be justified in the boardroom, as long as corporate managers can explain how social activities can enhance customer satisfaction and, in turn, generate greater sales and financial performance.

6.3 Limitations and avenues for future research

While the results of this thesis are intuitive for academics, and where applicable can benefit corporate managers in a number of ways, we stress that there are a number of limitations to this thesis. In this section we formally identify those limitations and where appropriate follow with suggestions on avenues for future research.

The first limitation comes, perhaps unexpectedly, from one of the key advantages of this thesis – that is, a short-term event study provides the ability to avoid investigative issues related to confounding factors. Thus our exclusive focus is only the short-term impact of CSR. Indeed in the long term it is quite possible for CSR activities to generate many value-enhancing benefits (for example, higher reputation and brand loyalty, greater employee morale and productivity etc.), though as our results imply, these are only obtainable (if at all) after our initial period of analysis. Thus our earlier conclusions that CSR is tantamount to managers “approaching fraud” (Friedman, 1970) may only be temporary, and, once short-term costs are absorbed, may begin to significantly contribute to firm value. We stress for this reason that while our results are negative in the short term, they should not be used in isolation as grounds to avoid the adoption of CSR practices. Definitive conclusions regarding
the long-term consequences of CSR will require a longer-term analysis, but one we stress must continue to systematically address the confounding factors inherent in this choice of analysis.

Moreover our interpretations, particularly relating to our industry results, require some level of caution. The first relates to statistical inferences from studies of small sample sizes. For instance, the industries of Telecommunications \((n = 16)\), Oil & Gas \((n = 10)\) and Utilities \((n = 18)\) are characterised by small samples. A similar caution can be extended to our super-sector groups; for instance, Retail \((n = 17)\), Health Care Equipment & Services \((n = 18)\), and Basic Resources \((n = 22)\). Thus in order to provide greater robustness to our industry results, future research should employ larger datasets.

Furthermore we stress simply identifying differences in industry context is not enough. Future research needs to be able explain why these differences occur and how practitioners are able to use these findings to develop more appropriate CSR strategies (even if the conclusion is to avoid CSR altogether). In this thesis for instance, we find an industry’s sensitivity to the end consumer represents an important mediating factor between the CSP–CFP link. We note this factor is among many that can potentially provide unique pressures and create a ‘specialisation’ of social interest (Holmes, 1977; Ingram, 1978). Thus other prospective areas of investigation may include government regulation, community/public visibility, patterns of stakeholder behaviour, and degrees of concern for the environment.

Given the lack of industry-specific studies (for example, to name a few: Ogden and Watson, 1999; Simpson and Kohers, 2002), and even fewer that investigate the moderating/mediating effects of a specific industry characteristic (Baron et al., 2011; Hull and Rothenberg, 2008), there seems to still exist something of a black box between CSP and CFP at the industry level of analysis. Moreover, given our thesis is the first (to the best of our knowledge) to explore
differences in the CSP–CFP relationship across industries, and perhaps more profoundly the lack of studies investigating in general the mediating effects,\textsuperscript{69} we believe our thesis may have simply scratched the surface of a potentially rich and burgeoning area of research.

Another limitation of this thesis is the construction of our ‘industry sector group’ dummy variable. Although our classification methodology is founded on the rationale of pre-existing literature (i.e. Lev et al., 2010), the basis of our classification method is still nevertheless qualitative in nature. Thus evaluations of consumer sensitivity can be exposed to the subjective selection of the researcher. Further, while we have attempted to employ more quantitative measures of consumer sensitivity (for example, the Herfindahl–Hirschman Index), we find these to be too noisy to accurately capture the intended mediating effect. This is especially pronounced given the global nature of our study and the limitations on data for each representative industry as a consequence. Instead our research relies on the strength and judgment of the researcher, and the accuracy of ICB sub-sector definitions to capture details on the primary goods or services provided. A valuable line of future research thus can explore other datasets that allow quantitative measures of consumer sensitivity to be employed.

Lastly, our study uses a global sample of firms spanning 24 countries. While such a dataset can provide results robust to a worldwide scale, aggregate results such as this can easily mask important differences between country effects. Certainly our results partitioned at the country level are testament to these important differences. For instance, while firms in the US and UK are found to experience significant and negative abnormal returns, firms in Japan experience significant and positive abnormal returns. Without further analysis, we can only hypothesise

\textsuperscript{69} In a recent content analysis, only 7 per cent of studies were found to investigate the underlying mechanisms between CSR and the hypothesised outcome (Aguinis and Glavas, 2012).
this is due to the more socially favorable culture of Japanese firms. Indeed the economic system in Japan has been traditionally founded on relational trading between firms and the long-term relationships established with employees (for example, life-time employment). Further, as CSR research has been majority based on a European or Anglo-American study, an investigation of the unique country effects under a Japanese context certainly merits further investigation.
Appendix 1: Flow chart 1 – structure of Chapter 2

- CSP and CFP relationship
  - Is there a theoretical rationale?
    - No
      - Instead scholars have relied on neo-classical arguments
        - Arguments supporting CSR engagement
        - Arguments not supporting CSR engagement
          - What do meta-analysis reviews indicate?
            - Small positive correlation, “probably; it depends” (Peloza, 2009)
          - What do other empirical studies indicate?
            - Positive effect, Negative effect, Neutral effect, Non-linear effect
              - Overall mixed evidence
                - Is there an avenue for future research?
                  - YES, future research needs to begin foremost with a reliable, validated, and significantly “clean” measure of the CSR factor. This is achieved in our first empirical chapter via an event study.
Appendix 2: Flow chart 2 – data construction and arrival of final sample of interest

- Initial collection from FTSE4Good: 729 firms
- Cross reference with ISIN code: 699 firms
- Remove confounding effects: 651 firms
- Final sample for event study: 651 firms
- Evaluating shareholder wealth implications
  - Final sample size from event study: 651 firms
  - Controls + financial constraint variables: 450 firms
  - Insti. ownership data (2008-2012): 96 firms
  - Final sample for OLS regression: 96 firms
- Explaining sources of abnormal returns
  - Insti. ownership data (2008-2012): 96 firms
  - Control variables: 96 firms
  - Restrict to only US firms: 53 firms
  - Final sample size PSM analysis: 53 firms
- Addressing the endogeneity issue
  - Final sample size from event study: 651 firms
  - Controls + financial constraints: 453 firms
  - ICB industry classification: 453 firms
  - Final sample for consumer sensitivity analysis: 453 firms
- Investigating ‘Consumer sensitivity’
Appendix 3: Flow chart 3 – analysis and empirics

**Question:** What are the shareholder wealth implications of CSR impact?

**Empirics:** Event study
- What is the direction and significance of abnormal returns?

**Question:** What are the sources of abnormal returns?

**Empirics:** OLS cross sectional regression
- Are the following firm specific characteristics significant?
  - Firm size
  - Leverage
  - Profitability
  - Asset turnover
  - Growth in total assets
  - CAPEX
  - Dividend payout
  - Cash holdings
  - Investor Turnover
  - Changes in Institutional Ownership
  - Industry Sector Group

**Question:** Is there an endogeneity issue between institutional ownership and CSR?

**Empirics:** Propensity score matching (PSM)
- Is the CSR factor significant?

**Question:** Is consumer sensitivity a strategic motivation?

**Empirics:** Consumer sensitivity methodology
- Is the ‘industry sector group’ significant?
Appendix 4: Full list of subsectors and categorisation outcome

Table 33: Full list of subsectors categorised as ‘industry sector group’

This table presents subsectors included under ‘industry sector group’. Following our consumer sensitivity methodology (refer to section 5.3.3) we divide subsectors into either ‘industry sector group’ or ‘consumer sector group’. This table presents the former.

<table>
<thead>
<tr>
<th>Industry Sector Group</th>
<th>Industry Group - level 4</th>
<th>Industry Group - level 2</th>
<th>ICB Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace</td>
<td>Industrials</td>
<td></td>
<td>Manufacturers, assemblers and distributors of aircraft and aircraft parts primarily used in commercial or private air transport. Excludes manufacturers of communications satellites, which are classified under Telecommunications Equipment.</td>
</tr>
<tr>
<td>Asset Managers</td>
<td>Financials</td>
<td></td>
<td>Companies that provide custodial, trustee and other related fiduciary services. Includes mutual fund management companies.</td>
</tr>
<tr>
<td>Auto Parts</td>
<td>Consumer Goods</td>
<td></td>
<td>Manufacturers and distributors of new and replacement parts for motorcycles and automobiles, such as engines, carburetors and batteries. Excludes producers of tires, which are classified under Tires.</td>
</tr>
<tr>
<td>Building Materials &amp; Fixtures</td>
<td>Industrials</td>
<td></td>
<td>Producers of materials used in the construction and refurbishment of buildings and structures, including cement and other aggregates, wooden beams and frames, paint, glass, roofing and flooring materials other than carpets. Includes producers of bathroom and kitchen fixtures, plumbing supplies and central air-conditioning and heating equipment. Excludes producers of raw lumber, which are classified under Forestry.</td>
</tr>
<tr>
<td>Business Support Services</td>
<td>Industrials</td>
<td></td>
<td>Providers of nonfinancial services to a wide range of industrial enterprises and governments. Includes providers of printing services, management consultants, office cleaning services, and companies that install, service and monitor alarm and security systems.</td>
</tr>
<tr>
<td>Commercial Vehicles &amp; Trucks</td>
<td>Industrials</td>
<td></td>
<td>Manufacturers and distributors of commercial vehicles and heavy agricultural and construction machinery, including rail cars, tractors, bulldozers, cranes, buses and industrial lawn mowers. Includes non-military shipbuilders, such as builders of cruise ships and ferries.</td>
</tr>
<tr>
<td>Commodity Chemicals</td>
<td>Basic Materials</td>
<td></td>
<td>Producers and distributors of simple chemical products that are primarily used to formulate more complex chemicals or products, including plastics and rubber in their raw form, fiberglass and synthetic fibers.</td>
</tr>
<tr>
<td>Computer Hardware</td>
<td>Technology</td>
<td></td>
<td>Manufacturers and distributors of computers, servers, mainframes, workstations and other computer hardware and subsystems, such as mass-storage drives, mice, keyboards and printers.</td>
</tr>
<tr>
<td>Computer Services</td>
<td>Technology</td>
<td></td>
<td>Companies that provide consulting services to other businesses relating to information technology. Includes providers of computer-system design, systems integration, network and systems operations, data management and storage, repair services and technical support.</td>
</tr>
<tr>
<td>Containers &amp; Packaging</td>
<td>Industrials</td>
<td></td>
<td>Makers and distributors of cardboard, bags, boxes, cans, drums, bottles and jars and glass used for packaging.</td>
</tr>
<tr>
<td>Conventional Electricity</td>
<td>Utilities</td>
<td></td>
<td>Companies generating and distributing electricity through the burning of fossil fuels such as coal, petroleum and natural gas, and through nuclear energy.</td>
</tr>
<tr>
<td>Category</td>
<td>Sector</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Diversified Industrials</td>
<td>Industrials</td>
<td>Industrial companies engaged in three or more classes of business within the Industrial industry that differ substantially from each other.</td>
<td></td>
</tr>
<tr>
<td>Diversified REITs</td>
<td>Financials</td>
<td>Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) that invest in a variety of property types without a concentration on any single type.</td>
<td></td>
</tr>
<tr>
<td>Electrical Components &amp; Equipment</td>
<td>Industrials</td>
<td>Makers and distributors of electrical parts for finished products, such as printed circuit boards for radios, televisions and other consumer electronics. Includes makers of cables, wires, ceramics, transistors, electric adapters and security cameras.</td>
<td></td>
</tr>
<tr>
<td>Electronic Equipment</td>
<td>Industrials</td>
<td>Manufacturers and distributors of electronic products used in different industries. Includes makers of lasers, smart cards, bar scanners, fingerprinting equipment and other electronic factory equipment.</td>
<td></td>
</tr>
<tr>
<td>Electronic Office Equipment</td>
<td>Technology</td>
<td>Manufacturers and distributors of electronic office equipment, including photocopiers and fax machines.</td>
<td></td>
</tr>
<tr>
<td>Equity Investment Instruments</td>
<td>Financials</td>
<td>Corporate closed-ended investment entities identified under distinguishing legislation, such as investment trusts and venture capital trusts.</td>
<td></td>
</tr>
<tr>
<td>Exploration &amp; Production</td>
<td>Oil &amp; Gas</td>
<td>Companies engaged in the exploration for and drilling, production, refining and supply of oil and gas products.</td>
<td></td>
</tr>
<tr>
<td>Financial Administration</td>
<td>Industrials</td>
<td>Providers of computerized transaction processing, data communication and information services, including payroll, bill payment and employee benefit services.</td>
<td></td>
</tr>
<tr>
<td>Fixed Line Telecommunications</td>
<td>Telecommunications</td>
<td>Providers of fixed-line telephone services, including regional and long-distance. Includes companies that primarily provides telephone services through the internet. Excludes companies whose primary business is Internet access, which are classified under Internet.</td>
<td></td>
</tr>
<tr>
<td>Gas Distribution</td>
<td>Utilities</td>
<td>Distributors of gas to end users. Excludes providers of natural gas as a commodity, which are classified under the Oil &amp; Gas industry.</td>
<td></td>
</tr>
<tr>
<td>General Mining</td>
<td>Basic Materials</td>
<td>Companies engaged in the exploration, extraction or refining of minerals not defined elsewhere within the Mining sector.</td>
<td></td>
</tr>
<tr>
<td>Heavy Construction</td>
<td>Industrials</td>
<td>Companies engaged in the construction of commercial buildings, infrastructure such as roads and bridges, residential apartment buildings, and providers of services to construction companies, such as architects, masons, plumbers and electrical contractors.</td>
<td></td>
</tr>
<tr>
<td>Industrial &amp; Office REITs</td>
<td>Financials</td>
<td>Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) that primarily invest in office, industrial and flex properties.</td>
<td></td>
</tr>
<tr>
<td>Industrial Machinery</td>
<td>Industrials</td>
<td>Designers, manufacturers, distributors and installers of industrial machinery and factory equipment, such as machine tools, lathes, presses and assembly line equipment. Includes makers of pollution control equipment, castings, pressings, welded shapes, structural steelwork, compressors, pumps, bearings, elevators and escalators.</td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Industry</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Industrial Suppliers</td>
<td>Industrials</td>
<td>Distributors and wholesalers of diversified products and equipment primarily used in the commercial and industrial sectors. Includes builders merchants.</td>
<td></td>
</tr>
<tr>
<td>Integrated Oil &amp; Gas</td>
<td>Oil &amp; Gas</td>
<td>Integrated oil and gas companies engaged in the exploration for and drilling, production, refining, distribution and retail sales of oil and gas products.</td>
<td></td>
</tr>
<tr>
<td>Iron &amp; Steel</td>
<td>Basic Materials</td>
<td>Manufacturers and stockholders of primary iron and steel products such as pipes, wires, sheets and bars, encompassing all processes from smelting in blast furnaces to rolling mills and foundries. Includes companies that primarily mine iron ores.</td>
<td></td>
</tr>
<tr>
<td>Marine Transportation</td>
<td>Industrials</td>
<td>Providers of on-water transportation for commercial markets, such as container shipping. Excludes ports, which are classified under Transportation Services, and shipbuilders, which are classified under Commercial Vehicles &amp; Trucks.</td>
<td></td>
</tr>
<tr>
<td>Mobile Telecommunications</td>
<td>Telecommunications</td>
<td>Providers of mobile telephone services, including cellular, satellite and paging services. Includes wireless tower companies that own, operate and lease mobile site towers to multiple wireless service providers.</td>
<td></td>
</tr>
<tr>
<td>Multiutilities</td>
<td>Utilities</td>
<td>Utility companies with significant presence in more than one utility.</td>
<td></td>
</tr>
<tr>
<td>Nonferrous Metals</td>
<td>Basic Materials</td>
<td>Producers and traders of metals and primary metal products other than iron, aluminum and steel. Excludes companies that make finished products, which are categorized according to the type of end product.</td>
<td></td>
</tr>
<tr>
<td>Oil Equipment &amp; Services</td>
<td>Oil &amp; Gas</td>
<td>Suppliers of equipment and services to oil fields and offshore platforms, such as drilling, exploration, seismic-information services and platform construction.</td>
<td></td>
</tr>
<tr>
<td>Pipelines</td>
<td>Oil &amp; Gas</td>
<td>Operators of pipelines carrying oil, gas or other forms of fuel. Excludes pipeline operators that derive the majority of their revenues from direct sales to end users, which are classified under Gas Distribution.</td>
<td></td>
</tr>
<tr>
<td>Railroads</td>
<td>Industrials</td>
<td>Providers of industrial railway transportation and railway lines. Excludes passenger railway companies, which are classified under Travel &amp; Tourism, and manufacturers of rail cars, which are classified under Commercial Vehicles &amp; Trucks.</td>
<td></td>
</tr>
<tr>
<td>Residential REITs</td>
<td>Financials</td>
<td>Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) that primarily invest in residential home properties. Includes apartment buildings and residential communities.</td>
<td></td>
</tr>
<tr>
<td>Retail REITs</td>
<td>Financials</td>
<td>Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) that primarily invest in retail properties. Includes malls, shopping centers, strip centers and factory outlets.</td>
<td></td>
</tr>
<tr>
<td>Semiconductors</td>
<td>Technology</td>
<td>Producers and distributors of semiconductors and other integrated chips, including other products related to the semiconductor industry, such as semiconductor capital equipment and motherboards. Excludes makers of printed circuit boards, which are classified under Electrical Components &amp; Equipment.</td>
<td></td>
</tr>
<tr>
<td>Software</td>
<td>Technology</td>
<td>Publishers and distributors of computer software for home or corporate use. Excludes computer game producers, which are classified under Toys.</td>
<td></td>
</tr>
<tr>
<td>Specialty Chemicals</td>
<td>Basic Materials</td>
<td>Producers and distributors of finished chemicals for industries or end users, including dyes, cellular polymers, coatings, special plastics and other chemicals for specialized applications. Includes makers of colorings, flavors and fragrances, fertilizers, pesticides, chemicals used to make drugs, paint in its pigment form and glass in its unfinished form. Excludes producers of paint and glass products used for construction, which are classified under Building Materials &amp; Fixtures.</td>
<td></td>
</tr>
<tr>
<td>Specialty Finance</td>
<td>Financials</td>
<td>Companies engaged in financial activities not specified elsewhere. Includes companies not classified under Equity Investment Instruments or Nonequity Investment Instruments engaged primarily in owning stakes in a diversified range of companies.</td>
<td></td>
</tr>
<tr>
<td>Specialty REITs</td>
<td>Financials</td>
<td>Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) that invest in self storage properties, properties in the health care industry such as hospitals, assisted living facilities and health care laboratories, and other specialized properties such as auto dealership facilities, timber properties and net lease properties.</td>
<td></td>
</tr>
<tr>
<td>Telecommunications Equipment</td>
<td>Technology</td>
<td>Makers and distributors of high-technology communication products, including satellites, mobile telephones, fibers optics, switching devices, local and wide-area networks, teleconferencing equipment and connectivity devices for computers, including hubs and routers.</td>
<td></td>
</tr>
<tr>
<td>Transportation Services</td>
<td>Industrials</td>
<td>Companies providing services to the Industrial Transportation sector, including companies that manage airports, train depots, roads, bridges, tunnels, ports, and providers of logistic services to shippers of goods. Includes companies that provide aircraft and vehicle maintenance services.</td>
<td></td>
</tr>
<tr>
<td>Trucking</td>
<td>Industrials</td>
<td>Companies that provide commercial trucking services. Excludes road and tunnel operators, which are classified under Transportation Services, and vehicle rental and taxi companies, which are classified under Travel &amp; Tourism.</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Utilities</td>
<td>Companies providing water to end users, including water treatment plants.</td>
<td></td>
</tr>
</tbody>
</table>
Table 34: Full list of subsectors categorised as ‘consumer sector group’

This table presents subsectors included under the “Consumer Sector Group”. Following our consumer sensitivity methodology (refer to section 5.3.3) we divide subsectors into either “Industry Sector Group” or “Consumer Sector group”. This table presents the latter.

<table>
<thead>
<tr>
<th>Consumer Sector Group</th>
<th>Industry Group - level 2</th>
<th>ICB Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airlines</td>
<td>Consumer Services</td>
<td>Companies providing primarily passenger air transport. Excludes airports, which are classified under Transportation Services.</td>
</tr>
<tr>
<td>Alternative Electricity</td>
<td>Utilities</td>
<td>Companies generating and distributing electricity from a renewable source. Includes companies that produce solar, water, wind and geothermal electricity.</td>
</tr>
<tr>
<td>Apparel Retailers</td>
<td>Consumer Services</td>
<td>Retailers and wholesalers specializing mainly in clothing, shoes, jewelry, sunglasses and other accessories.</td>
</tr>
<tr>
<td>Automobiles</td>
<td>Consumer Goods</td>
<td>Makers of motorcycles and passenger vehicles, including cars, sport utility vehicles (SUVs) and light trucks. Excludes makers of heavy trucks, which are classified under Commercial Vehicles &amp; Trucks, and makers of recreational vehicles (RVs and ATVs), which are classified under Recreational Products.</td>
</tr>
<tr>
<td>Banks</td>
<td>Financials</td>
<td>Banks providing a broad range of financial services, including retail banking, loans and money transmissions.</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>Health Care</td>
<td>Companies engaged in research into and development of biological substances for the purposes of drug discovery and diagnostic development, and which derive the majority of their revenue from either the sale or licensing of these drugs and diagnostic tools.</td>
</tr>
<tr>
<td>Brewers</td>
<td>Consumer Goods</td>
<td>Manufacturers and shippers of cider or malt products such as beer, ale and stout.</td>
</tr>
<tr>
<td>Broadcasting &amp;</td>
<td>Consumer Services</td>
<td>Producers, operators and broadcasters of radio, television, music and filmed entertainment. Excludes movie theatres, which are classified under Recreational Services.</td>
</tr>
<tr>
<td>Entertainment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broadline Retailers</td>
<td>Consumer Services</td>
<td>Retail outlets and wholesalers offering a wide variety of products including both hard goods and soft goods.</td>
</tr>
<tr>
<td>Business Training &amp;</td>
<td>Industrials</td>
<td>Providers of business or management training courses and employment services.</td>
</tr>
<tr>
<td>Employment Agencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing &amp; Accessories</td>
<td>Consumer Goods</td>
<td>Manufacturers and distributors of all types of clothing, jewelry, watches or textiles. Includes sportswear, sunglasses, eyeglass frames, leather clothing and goods, and processors of hides and skins.</td>
</tr>
<tr>
<td>Consumer Electronics</td>
<td>Consumer Goods</td>
<td>Manufacturers and distributors of consumer electronics, such as TVs, VCRs, DVD players, audio equipment, cable boxes, calculators and camcorders.</td>
</tr>
<tr>
<td>Category</td>
<td>Sector</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Consumer Finance</td>
<td>Financials</td>
<td>Credit card companies and providers of personal finance services such as personal loans and check cashing companies.</td>
</tr>
<tr>
<td>Delivery Services</td>
<td>Industrials</td>
<td>Operators of mail and package delivery services for commercial and consumer use. Includes courier and logistic services primarily involving air transportation.</td>
</tr>
<tr>
<td>Drug Retailers</td>
<td>Consumer Services</td>
<td>Operators of pharmacies, including wholesalers and distributors catering to these businesses.</td>
</tr>
<tr>
<td>Durable Household Products</td>
<td>Consumer Goods</td>
<td>Manufacturers and distributors of domestic appliances, lighting, hand tools and power tools, hardware, cutlery, tableware, garden equipment, luggage, towels and linens.</td>
</tr>
<tr>
<td>Farming, Fishing &amp; Plantations</td>
<td>Consumer Goods</td>
<td>Companies that grow crops or raise livestock, operate fisheries or own non-tobacco plantations. Includes manufacturers of livestock feeds and seeds and other agricultural products but excludes manufacturers of fertilizers or pesticides, which are classified under Specialty Chemicals.</td>
</tr>
<tr>
<td>Food Products</td>
<td>Consumer Goods</td>
<td>Food producers, including meatpacking, snacks, fruits, vegetables, dairy products and frozen seafood. Includes producers of pet food and manufacturers of dietary supplements, vitamins and related items. Excludes producers of fruit juices, tea, coffee, bottled water and other non-alcoholic beverages, which are classified under Soft Drinks.</td>
</tr>
<tr>
<td>Food Retailers &amp; Wholesalers</td>
<td>Consumer Services</td>
<td>Supermarkets, food-oriented convenience stores and other food retailers and distributors. Includes retailers of dietary supplements and vitamins.</td>
</tr>
<tr>
<td>Footwear</td>
<td>Consumer Goods</td>
<td>Manufacturers and distributors of shoes, boots, sandals, sneakers and other types of footwear.</td>
</tr>
<tr>
<td>Full Line Insurance</td>
<td>Financials</td>
<td>Insurance companies with life, health, property &amp; casualty and reinsurance interests, no one of which predominates.</td>
</tr>
<tr>
<td>Furnishings</td>
<td>Consumer Goods</td>
<td>Manufacturers and distributors of furniture, including chairs, tables, desks, carpeting, wallpaper and office furniture.</td>
</tr>
<tr>
<td>Gambling</td>
<td>Consumer Services</td>
<td>Providers of gambling and casino facilities. Includes online casinos, racetracks and the manufacturers of pachinko machines and casino and lottery equipment.</td>
</tr>
<tr>
<td>Health Care Providers</td>
<td>Health Care</td>
<td>Owners and operators of health maintenance organizations, hospitals, clinics, dentists, opticians, nursing homes, rehabilitation and retirement centers. Excludes veterinary services, which are classified under Specialized Consumer Services.</td>
</tr>
<tr>
<td>Home Construction</td>
<td>Consumer Goods</td>
<td>Constructors of residential homes, including manufacturers of mobile and prefabricated homes intended for use in one place.</td>
</tr>
<tr>
<td>Category</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
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<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Internet</td>
<td>Technology</td>
<td>Companies providing Internet-related services, such as Internet access providers and search engines and providers of Web site design, Web hosting, domain-name registration and e-mail services.</td>
</tr>
<tr>
<td>Investment Services</td>
<td>Financials</td>
<td>Companies providing a range of specialized financial services, including securities brokers and dealers, online brokers and security or commodity exchanges.</td>
</tr>
<tr>
<td>Life Insurance</td>
<td>Financials</td>
<td>Companies engaged principally in life and health insurance.</td>
</tr>
<tr>
<td>Media Agencies</td>
<td>Consumer Services</td>
<td>Companies providing advertising, public relations and marketing services. Includes billboard providers and telemarketers.</td>
</tr>
<tr>
<td>Medical Equipment</td>
<td>Health Care</td>
<td>Manufacturers and distributors of medical devices such as MRI scanners, prosthetics, pacemakers, X-ray machines and other non-disposable medical devices.</td>
</tr>
<tr>
<td>Medical Supplies</td>
<td>Health Care</td>
<td>Manufacturers and distributors of medical supplies used by health care providers and the general public. Includes makers of contact lenses, eyeglass lenses, bandages and other disposable medical supplies.</td>
</tr>
<tr>
<td>Nondurable Household Products</td>
<td>Consumer Goods</td>
<td>Producers and distributors of pens, paper goods, batteries, light bulbs, tissues, toilet paper and cleaning products such as soaps and polishes.</td>
</tr>
<tr>
<td>Paper</td>
<td>Basic Materials</td>
<td>Producers, converters, merchants and distributors of all grades of paper. Excludes makers of printed forms, which are classified under Business Support Services, and manufacturers of paper items such as cups and napkins, which are classified under Nondurable Household Products.</td>
</tr>
<tr>
<td>Personal Products</td>
<td>Consumer Goods</td>
<td>Makers and distributors of cosmetics, toiletries and personal-care and hygiene products, including deodorants, soaps, toothpaste, perfumes, diapers, shampoos, razors and feminine-hygiene products. Includes makers of contraceptives other than oral contraceptives, which are classified under Pharmaceuticals.</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>Health Care</td>
<td>Manufacturers of prescription or over-the-counter drugs, such as aspirin, cold remedies and birth control pills. Includes vaccine producers but excludes vitamin producers, which are classified under Food Products.</td>
</tr>
<tr>
<td>Property &amp; Casualty Insurance</td>
<td>Financials</td>
<td>Companies engaged principally in accident, fire, automotive, marine, malpractice and other classes of nonlife insurance.</td>
</tr>
<tr>
<td>Publishing</td>
<td>Consumer Services</td>
<td>Publishers of information via printed or electronic media.</td>
</tr>
<tr>
<td>Real Estate Holding &amp; Development</td>
<td>Financials</td>
<td>Companies that invest directly or indirectly in real estate through development, investment or ownership. Excludes real estate investment trusts and similar entities, which are classified as Real Estate Investment Trusts.</td>
</tr>
<tr>
<td>Company Type</td>
<td>Sector</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Real Estate Services</td>
<td>Financials</td>
<td>Companies that provide services to real estate companies but do not own the properties themselves. Includes agencies, brokers, leasing companies, management companies and advisory services. Excludes real estate investment trusts and similar entities, which are classified as Real Estate Investment Trusts.</td>
</tr>
<tr>
<td>Recreational Products</td>
<td>Consumer Goods</td>
<td>Manufacturers and distributors of recreational equipment. Includes musical instruments, photographic equipment and supplies, RVs, ATVs and marine recreational vehicles such as yachts, dinghies and speedboats.</td>
</tr>
<tr>
<td>Recreational Services</td>
<td>Consumer Services</td>
<td>Providers of leisure facilities and services, including fitness centers, cruise lines, movie theatres and sports teams.</td>
</tr>
<tr>
<td>Renewable Energy Equipment</td>
<td>Oil &amp; Gas</td>
<td>Companies that develop or manufacture renewable energy equipment utilizing sources such as solar, wind, tidal, geothermal, hydro and waves.</td>
</tr>
<tr>
<td>Restaurants &amp; Bars</td>
<td>Consumer Services</td>
<td>Operators of restaurants, fast-food facilities, coffee shops and bars. Includes integrated brewery companies and catering companies.</td>
</tr>
<tr>
<td>Soft Drinks</td>
<td>Consumer Goods</td>
<td>Manufacturers, bottlers and distributors of non-alcoholic beverages, such as soda, fruit juices, tea, coffee and bottled water.</td>
</tr>
<tr>
<td>Specialized Consumer Services</td>
<td>Consumer Services</td>
<td>Providers of consumer services such as auction houses, day-care centers, dry cleaners, schools, consumer rental companies, veterinary clinics, hair salons and providers of funeral, lawn-maintenance, consumer-storage, heating and cooling installation and plumbing services.</td>
</tr>
<tr>
<td>Specialty Retailers</td>
<td>Consumer Services</td>
<td>Retailers and wholesalers concentrating on a single class of goods, such as electronics, books, automotive parts or closeouts. Includes automobile dealerships, video rental stores, dollar stores, duty-free shops and automotive fuel stations not owned by oil companies.</td>
</tr>
<tr>
<td>Tires</td>
<td>Consumer Goods</td>
<td>Manufacturers, distributors and retreaders of automobile, truck and motorcycle tires.</td>
</tr>
<tr>
<td>Toys</td>
<td>Consumer Goods</td>
<td>Manufacturers and distributors of toys and video/computer games, including such toys and games as playing cards, board games, stuffed animals and dolls.</td>
</tr>
<tr>
<td>Travel &amp; Tourism</td>
<td>Consumer Services</td>
<td>Companies providing travel and tourism related services, including travel agents, online travel reservation services, automobile rental firms and companies that primarily provide passenger transportation, such as buses, taxis, passenger rail and ferry companies.</td>
</tr>
</tbody>
</table>
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