Essays on Socially Responsible Behaviour

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Abstract

This thesis comprises three essays on socially responsible behaviour in the context of finance and the effect socially responsible behaviour has on wealth. The first essay examines socially responsible behaviour through comparing the effects of socially responsible investing (SRI) on the performance of mutual fund and conventional funds. Specifically, in this essay I examine whether SRI funds time market volatility and the extent to which market volatility timing influences the performance of SRI funds relative to conventional funds. Following Busse (1999), I use a multifactor model that accounts for volatility timing and identify 8.97% of SRI funds in the sample that time market volatility procyclically and 10.26% that time market volatility countercyclically. In terms of financial performance, SRI funds that time market volatility procyclically outperform conventional funds.

The second essay examines capital market reactions to corporate social responsibility (CSR) events and whether such events are associated with a wealth increase for shareholders and bondholders. Using an event study framework, I find that shareholders experience an abnormal loss (-0.12%) and bondholders an abnormal gain (+0.11%) over a three-day event window. Following Maxwell and Rao (2003), I test for a possible wealth transfer effect between shareholders and bondholders. The results suggest that abnormal change in shareholder wealth is inversely related to abnormal change in bondholder wealth. Although these results are only significant for positive environmental events, they indicate that bondholders gain wealth during a CSR event at the expense of shareholder wealth.

The third essay examines the effects of CSR on corporate financial performance (CFP) through a global analysis of firms. Using a panel regression model and data on firm CSR ratings, I investigate whether the effect of CSR has a positive effect on CFP for a panel of international firms across 49 countries/regions. I find that, on average, the CSR–CFP relation varies, with some countries/regions exhibiting a significantly positive CSR–CFP relation and others exhibiting a significantly negative CSR–CFP relation or no significant relation at all. To explain the differences between countries/regions, I include social culture and climate change regulation in the analysis, using a multivariate regression panel model. The results indicate that both social culture and regulation can influence the effect CSR has on CFP. Specifically, in countries/regions high in terms of individualism, masculinity, and uncertainty avoidance and that have greater climate change regulation, CSR has a positive effect on CFP.

Through my investigation in this thesis, I find that socially responsible behaviour can have a positive impact on financial wealth, but that this relation depends on the type of fund manager, the type of investor, and the social culture and government regulations of the society in which a firm is headquartered. Firms that wish to be more socially responsible should consider the impact their decisions have on not just shareholders, but also other key stakeholders, such as bondholders, employees,

regulators, and the community in which they operate. Further, managers who invest in socially responsible initiatives should do so in consideration of the environment and culture in which they operate.

Declaration

This thesis contains no material that has been accepted for the award of any other degree or diploma at any university or equivalent institution and, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

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Date: 9 July 2021

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To my friends, thanks for the great times and, ultimately, just for being there whenever I needed time away from it all. As trivial as our chats have been, they helped me keep my sanity throughout this long and arduous journey.

To Dad, I am sorry you were not around to see me complete my journey. I hope that, wherever you are, you will be proud of what I have accomplished. To Mum, thank you for being there and I'm sorry for always making you worry.

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CHAPTER 1: INTRODUCTION

1.1 Background and Structure of the Thesis

Socially responsible behaviour is an ethical framework, one that can be adopted by any entity, be it an individual, investor, firm, or government. These behaviours often lead to voluntary acts of altruism, beyond that which is set by the law, that an individual or organisation makes under the impression that the environment or society will be better off (McWilliams and Siegel, 2001). By this definition, social responsibility increases social welfare; however, such increases in social good incur a cost in terms of resources, whether they be time, labour, capital, or a combination of the three. This dissertation thus examines the broad issue of the *financial benefits and costs* of doing *social* good.

The costs of socially responsible acts can arise for firms for a number of reasons. For example, a firm can decide to replace existing equipment for more costly but less polluting machinery, or an investor can forgo investing in a profitable stock because the company has poor community engagement. In these examples, there are differences in the entity that exhibits social responsibility (i.e. a firm in the former, and an investor in the latter). As a matter of clarification, I define a firm's socially responsible behaviour, or corporate social responsibility (CSR) to encompass corporate decisions with a social, governance, ethical, or environmental impact, and I define socially responsible investing (SRI) as the socially responsible behaviour exhibited by investors or investment funds.

Based on the above distinction between SRI and CSR, this dissertation comprises three essays on socially responsible behaviour. The first essay, in Chapter 2, focuses on how SRI funds compare to their conventional non-SRI counterparts and how fund manager skill might influence relative comparisons. The second essay, in Chapter 3, focuses on how shareholders and bondholders react to firm CSR-related events in a U.S.-based sample. Chapter 4 presents

the third essay, which examines the relation between CSR and corporate financial performance (CFP) from a global context and how institutional factors, such as social culture and regulation, affect the CSR–CFP relationship. Figure 1.1 presents the structure of this thesis.

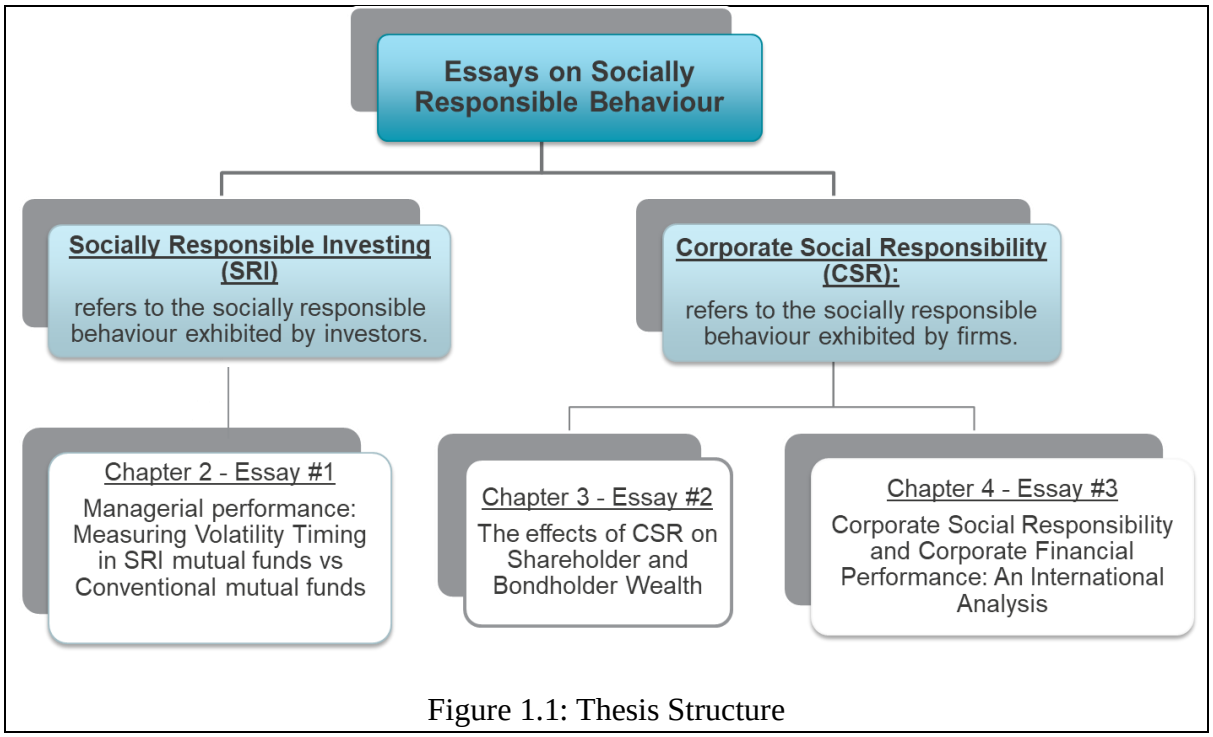

Figure 1.1: Thesis Structure

Lastly, in Chapter 5, I conclude this thesis by discussing the broad findings of each essay, their limitations, and areas for future research.

1.2 Objectives and Research Questions

The main objective of this thesis is to examine socially responsible behaviour and whether doing *social good* has a positive or negative impact on *financial performance*. As the definition of what constitutes social good varies, so too can the definition of financial performance vary, depending on whether a firm or an investor is carrying out the act. In this section, I clarify these issues by further developing the research questions for each essay.

1.2.1 Chapter 2 Research Questions

In Chapter 2, to examine how socially responsible behaviour impacts the financial performance of investors, I investigate SRI mutual funds and compare them to their non-SRI (i.e. conventional) mutual fund counterparts. The results of studies on SRI performance are mixed. For example, Geczy, Stambaugh, and Levin (2005) find SRI to be associated with significant underperformance, whereas Bauer, Koedijk, and Otten (2005), for instance, find an association with significant outperformance, leading to wide debate in terms of the performance of SRI funds versus conventional funds (Rathner, 2013).

One explanation behind the varied findings that Geczy et al. (2005) and Ferruz, Marco, and Vargas (2008) explore is that managerial skill matters in the comparison between SRI and non-SRI funds. For example, Zingales (2000) argues that, in an environment that emphasises quality and innovation, human capital is particularly important. Further, Brekke, and Nyborg (2005) empirically find that 'morally motivated workers demand lower wages from a green firm…' (Brekke and Nyborg, 2005, p. 17), suggesting that CSR policies can allow a firm to attract more productive and motivated employees at a lower cost. This view is consistent with that of Edmans (2011), who finds that a portfolio formed from Forbes 100 Best Companies to Work for in America earns an annual Carhart (1997) four-factor alpha of 3.5% above market

benchmarks. These findings support the view that more socially responsible organisations enjoy greater employee satisfaction, which, in turn, improves financial performance. Consistent with this view, Ferruz et al. (2008) investigate Spanish SRI fund managers, but find no significant evidence to suggest SRI fund managers exhibit skill in terms of stock selection or timing the market. Since volatility is more persistent than stock market returns (Bollerslev, Chou, and Kroner, 1992), Busse (1999) argues that the volatility of markets would offer a lower and more reasonable benchmark for comparing managerial skill. Chapter 2 thus focuses on examining SRI and non-SRI funds while controlling for managerial skill as measured by a manager's tendency to time the volatility of markets.

Based on the above discussion, Chapter 2 addresses the issue of whether doing social good has a positive or negative impact on financial performance by examining the following research questions.

RQ1: What are the differences between SRI fund and conventional fund performance after accounting for managerial skill as measured by volatility timing?

RQ2: Given the volatility timing tendency of funds, how do SRI funds compare to conventional funds during periods of high and low volatility, such as in crisis and non-crisis periods, respectively?

1.2.2 Chapter 3 Research Questions

In Chapter 3, I investigate the impact of firm CSR on shareholders' and bondholders' wealth. Advocates for the CSR movement contend that CSR can improve shareholder wealth, whereas others see it as destroying wealth. Friedman (1970), for example, states that the sole responsibility of a business should be the maximisation of shareholder wealth. Tirole (2001)

and Benabou and Tirole (2010) further argue that CSR is simply the manifestation of agency problems inside the firm and, accordingly, managers implementing CSR are simply borrowing virtue as managers utilise shareholder wealth to gain good reputation. From this perspective, any positive news about CSR can be considered bad news for shareholders, since agency costs are increased through a wealth transfer from shareholders to managers. Chapter 3 thus contributes to the growing literature by asking the following research questions.

RQ3: What are the effects of firm CSR activity on shareholder and bondholder wealth?

RQ4: Given that CSR events redistribute wealth from the firm to society, do CSR events transfer wealth between shareholders and bondholders?

To address RQ3 and RQ4, Chapter 3 begins by examining shareholder market reaction to CSR-related events, as indicated by abnormal returns. Shareholders' abnormal returns are then compared and contrasted to bondholders' abnormal returns, to assess whether capital markets, as a whole, perceive CSR to be a value-adding activity or whether such socially responsible activities are viewed as decreasing wealth. The results of the event study analysis reveal that CSR events surrounding U.S. firms experience, on average, a shareholder wealth decline of up to 0.16% over a three-day event window. Given the same events and controls, bondholder wealth increases instead by 0.05%.

These results are consistent with those of Kruger (2015), who finds that CSR activities decrease shareholder wealth, where the extent of the wealth decline is lower for firms with stronger corporate governance. When disaggregating the analysis into social and environmental dimensions, I find shareholder wealth is the lowest for events associated with a firm being environmentally responsible (i.e. positive environmental events). Additionally, since the wealth effects between shareholders and bondholders appear to be inversely related, I examine shareholder and bondholder abnormal returns in a multivariate setting and test for

any potential wealth transfers from shareholders to bondholders. The results provide evidence that shareholder abnormal returns are inversely related to bondholder abnormal returns. Overall, these findings suggest that, when firms are socially responsible, shareholder returns are diminished, with part of those returns flowing through to bondholders. Managers therefore need to take care not to overinvest in CSR activities, since it can be shareholders who pay the ultimate price for CSR.

1.2.3 Chapter 4 Research Question

In Chapter 4, I examine the relationship between socially responsible behaviour exhibited by a firm (CSR) and firm performance (CFP). The notion that a firm can do well financially by doing social good centres on the presumption of a generally accepted set of moral principles that a particular society defines as social good. The idea that morals are relative to a society is known as moral relativism. From this perspective, moral values are contingent on the values held by the society being examined, and firms that engage in improving environmental and social welfare may not necessarily be viewed positively by a society that places more emphasis on other values.

Ultimately, a positive CSR–CFP relationship is therefore driven by the reciprocation of stakeholders (i.e. investors, employees, suppliers, customers, governments), and it is thus the stakeholder's perception that underlies the CSR–CFP relationship. This view is held by Porter and Kramer (2006), who argue that 'organisations can only do business with tacit or explicit permission from governments and the communities in which they operate' (Porter and Kramer, 2006, p. 3). Although a number of studies examine the CSR–CFP relationship, they are traditionally U.S. centric and thus unable to explore the mediating effects of social culture on the CSR–CFP relationship. Any societal perceptions on social good are therefore locked to the

social values held by U.S. stakeholders. Chapter 4 contributes to the literature by using a relatively new dataset on CSR across 49 different countries/regions, to examine what effects social culture and government regulations have on the CSR–CFP relationship. Specifically, Chapter 4 examines the following research question.

RQ5: What is the relationship between CSR and CFP globally, and what effects do institutional factors such as social culture and regulation have on the CSR–CFP relationship?

CHAPTER 2: SOCIALLY RESPONSIBLE INVESTING AND TIMING MARKET VOLATILITY

2.1 Introduction

A socially responsible investment mutual fund, also known as an ethical fund or a sustainable fund, provides a unique framework to investigate the cost of doing social good. Unlike conventional mutual funds, socially responsible investing (SRI) funds do not just use traditional risk and return measures as investment criteria, but also exclude investments deemed *unethical* or that fail to meet certain environmental, social, or governance standards.

While such an investment strategy is not a recent innovation, nor is it isolated to an individual country, its popularity can be clearly seen with the U.S. Forum for Sustainable and Responsible Investment (2012) report showing assets under management rising from $153 billion to $2.3 trillion between 2000 and 2012. These figures indicate a growth of 11% per annum, 1.24% higher than the growth in conventional mutual funds.

Even with such growth in the SRI fund market, the general merit behind SRI is still widely debated. From a social welfare perspective, there are clear benefits in investing in SRI funds for society as a whole; however, within a mean–variance framework, SRI strategies *should* result in inferior financial performance for an investor. Rudd (1981), for example, demonstrates that, given that a portfolio is constructed on the basis of a reduced investment universe, it should suffer from losses in diversification and underperform any unrestricted portfolio. Generally, the screening process behind SRI funds limits the investment universe and thus diversification possibilities, consequently shifting the mean–variance frontier towards less favourable risk–return trade-offs than those without and constraints. Hong and Kacperczyk (2009) provide evidence of the underperformance of SRI funds by examining so-called sin

stocks[1] in the United States and find that a portfolio of sin stocks has historically outperformed the stock market by 9.1% per annum. Divesting from this underpriced sin portion of the market should negatively impact the risk–return performance of SRI funds.

These results lead to the a priori expectation that SRI funds should underperform conventional funds; however, the empirical research has shown otherwise. For example, Bauer et al. (2005) and Renneboog, Ter Horst, and Zhang (2008) find no significant differences in performance between SRI funds and their conventional fund counterparts, even after taking into account the higher management fees associated with the former.

Do SRI funds underperform, outperform, or have the same performance as conventional funds? Rathner's (2013) meta-analysis finds that 'almost 75% of performance studies in the SRI literature find no statistically significant differences in performance and the remainder evenly split between SRI's over-performance and under-performance'.

Zingales (2000) suggests that, in an environment that emphasises quality and innovation, human capital is particularly important. Brekke and Nyborg (2005) find that a firm's corporate social responsibility policies act as a screening device, to attract higher-quality and more motivated workers, which has been shown to improve firm performance (Edmans, 2011). Balakrishnan, Sprinkle, and Williamson (2011) find a positive employee effort response to the amount of charitable giving conducted by a firm. Ooi and Lajbcygier (2013) investigate SRI funds from 1984 to 2006 and find that, once SRI prohibited stocks are eliminated from the benchmark portfolio, evidence of SRI managerial skill is exhibited by significant alphas. Conversely, Ferruz et al. (2008) investigate Spanish SRI fund managers but find no significant

[1] Hong and Kacperczyk (2009) refer to sin stocks as those in the tobacco, guns, defence, and natural resources business.

evidence of skill or market timing abilities. However, this result could be due to the difficulty in correctly timing market returns.

In this study, I focus on the volatility timing abilities of fund managers instead of stock selection ability or market timing tendency, given that Bollerslev et al. (1992) find volatility to be more persistent than stock market returns. Busse (1999) goes on to suggest that, given its persistence, volatility should be relatively more predictable by fund managers. Furthermore, the author finds that 80% of the sample funds time the market volatility countercyclically; that is, they tend to decrease (increase) fund betas when conditional market volatility rises (falls). Giambona and Golec (2009) go further to suggest that aggressive funds may wish to time market volatility countercyclically, because this helps reduce their average volatility while still maintaining a high average beta.

While prior literature, such as studies by Busse (1999), Giambona and Golec (2009), and Kim and In (2012), examine the impact of volatility timing on fund performance, their analysis does not cover SRI funds specifically. In addition, they do not contrast SRI and conventional funds. Further, while their findings suggest that fund managers time market volatility and, in doing so, positively affect fund performance, their analysis does not examine volatility timing during crisis (non-crisis) periods, which are known to have higher (lower) periods of volatility.

This chapter examines three issues related to SRI fund characteristics. The first is the proportions of SRI funds that are pro-cyclical or countercyclical and do not time the market volatility and compare these to conventional mutual funds. Since Giambona and Golec (2009) find that the direction of volatility timing is closely related to fund investment style, I have taken precautions to further distinguish SRI funds into various investment styles based on the Lipper classification code. To identify whether a fund times the volatility of markets, I run a

volatility timing model based on Busse (1999), which essentially is a Carhart (1997) four-factor (FF4C) model but includes a market volatility factor. Knowing whether SRI fund managers implement volatility timing strategies compared to conventional fund managers could be useful for investors when making investment decisions.

The second issue this paper examines is the relationship between SRI fund performance and volatility timing. In terms of conventional funds, Busse (1999) finds that countercyclical volatility timing enhances fund performance in the in-sample test, but not out of sample, whereas Giambona and Golec (2009), along with Kim and In (2012), find that procyclical volatility timing funds improve fund performance. Since I am the first to examine the extent of volatility timing and performance in an SRI context, I conjecture that procyclical SRI funds should outperform countercyclical funds, since prior studies have shown SRI funds to outperform during market crises, which are known to be periods of high volatility (Moskowitz, 1972; Glode, 2011; Nofsinger and Varma, 2014).

Lastly, while Nofsinger and Varma (2014) find that SRI performance is tied to market conditions, they do not consider the potential differences in volatility timing strategies between SRI and conventional funds, which can be what is driving the results rather than market conditions. To this end, I first identify the funds that are procyclical, countercyclical, and non-timers for both SRI and conventional funds. I then compare the performance of procyclical SRI funds to that of procyclical conventional funds, of countercyclical SRI funds to countercyclical conventional funds, and of non-timing SRI funds to non-timing conventional funds. Next, I move to the analysis of performance during periods of crisis and non-crisis. Having a better understanding of SRI performance relative to conventional funds under various periods of market conditions would be vital to investors and their plans to enter (exit) investment funds.

2.2 Data Selection and Summary Statistics

All monthly return data are obtained from the Center for Research in Security Prices (CRSP) Survivor-Bias-Free U.S. Mutual Fund Database. To evaluate the various asset pricing models, I require the use of a market index. Bauer et al. (2005) show that the use of the Dow Jones Sustainability Index or the Standard & Poor's (S&P) 500 index does not change the results in a single index–based capital asset pricing model (CAPM) or multifactor model. Thus I use the S&P 500 index as the main market benchmark index. The data for the risk-free rate (30-day Treasury bill rate) and small-minus-big (SMB), high-minus-low (HML), and winners-minus-losers (WML) portfolios are obtained from Kenneth French's data library.[2]

Since there is no readily available list of SRI funds, I manually compiled one by employing four different sources. I started by using the list of SRI funds identified by Statman (2006) for the period from 1990 to 2000. Building on this, I then searched the name history from the CRSP Survivor-Bias-Free U.S. Mutual Fund Database for certain keywords that commonly appear in SRI fund names. Specifically, I searched for funds with the keywords *social, socially, environment, green, sustainability, sustainable, ethics, ethical, faith, religion, Christian, Islam, Baptist, Lutheran,* and *Catholic*. Lastly, I looked through publicly available lists of SRI funds on the Social Funds website (socialfunds.com) and the Forum for Sustainable and Responsible Investment website (ussif.org) to find other SRI finds. Using these sources, I arrive at a total of 299 SRI funds.

Since I am interested in the volatility timing of the U.S. equity markets, I limit the sample to domestic equity funds and exclude international funds, global funds, real estate funds, utility funds, money market funds, government security funds, and any funds without a clear Lipper classification code as provided by the CRSP database. This approach reduces the

[2] See https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

sample to 268 funds.[3] For consistency with the prior literature, I require each fund to have at least 24 monthly observations to be included in the final sample. This creates a final sample of 234 U.S. domestic equity funds between January 1990 and December 2013, or 28,107 monthly observations across the full final sample.

Gil-Bazo, Ruiz-Verdu, and Santos (2010) point out that a distinguishing feature of SRI funds is they are generally younger and smaller and tend to have a bias towards large-cap portfolios, so any comparisons made with conventional funds would require some degree of control over this tendency. To this end, I create a matched conventional portfolio comprised of three matched conventional funds for each SRI fund in the sample.[4] Specifically, I obtained the header information of all the mutual funds in the CRSP database between January 1990 and December 2013 and classify those not part of the SRI list as conventional funds.

For each SRI fund, I then identify conventional funds that have the same Lipper classification, age, and size. To match by size, after matching for Lipper classification and age, I find three funds that are closest in terms of total net assets. I then form an equally weighted portfolio based on these three matched conventional funds to form the matched conventional fund portfolio.

[PLEASE INSERT TABLE 2.1 HERE]

Table 2.1 outlines the summary statistics for the sample of SRI funds, the matched conventional fund portfolio, and the market portfolio broken down into three equal periods. I note that the initial subsample is much smaller than the later subsamples, which are a by-product of the growth and popularity of SRI funds over recent years. As a casual observation,

[3] See Table A2.1 in Appendix A for a breakdown of the SRI fund sample by Lipper classification codes.
[4] My approach to matching conventional funds is similar to that of Nofsinger and Varma (2014).

I find that the average returns for SRI funds tend to be smaller than for their matched conventional fund portfolios across all sampling periods.

While these results hold no statistical significance, they provide a preliminary understanding of the performance differentials that can exist between SRI funds and conventional funds. The standard deviation of the SRI portfolio is noticeably higher than for the matched conventional portfolio in the 1990–1997 subsample, but not so much so in the later subsamples, which could be evidence supporting the learning effect explanation of Bauer et al. (2005).

2.3 Volatility Timing and Results

I start by examining whether a fund exhibits any volatility timing. Volatility timing shows how a fund manager reacts to changes in market volatility via adjusting the fund's beta. This intuition was first examined by Busse (1999), who finds that a fund's beta can be expressed as a linear function of the demeaned market volatility. Thus, the first model for determining the volatility timing direction of a fund is as follows:

$$R_{i,t} = \alpha_i + \beta_i^M R_{m,t} + \delta_i R_{m,t}(\sigma_t - \bar{\sigma}) + \varepsilon_{i,t} \quad (2.1)$$

where $R_{i,t} = r_t - r_{f,t}$ is the excess return of fund i at time t, α_i is the measure of the selectivity (risk-adjusted return) of fund i, $R_{m,t}$ is the excess market return at time t measured as the difference between the S&P 500 index and the one-month Treasury bill rate, and $\sigma_t - \bar{\sigma}$ is the demeaned market volatility term measured through an exponential generalized autoregressive conditional heteroskedasticity specification of market returns. To account for any possible time series correlation of the regression residuals, I estimate standard errors for the regression coefficients using the Newey–West (Newey and West, 1987) procedure.

Goetzmann, Ingersoll, and Ivkovic (2009) find that including the Fama–French factors improves market timing specifications by reducing measurement bias. As such, I adjust Eq. (2.1) to account for size (SMB) and the market to book (HML) and include Carhart's (1997) momentum factor (WML) as follows:

$$R_{i,t} = \alpha_i + \beta_i^M R_{m,t} + \delta_i R_{m,t}(\sigma_t - \bar{\sigma}) + \beta_i^{SMB} SMB_t + \beta_i^{HML} HML_t + \beta_i^{WML} WML_t + \varepsilon_{i,t} \quad (2.2)$$

The test for volatility timing, then, is a one-tailed test of significance on δ_i, where the null hypothesis for volatility timing is that fund i has no volatility timing, and the alternative is that the fund has either a positive or a negative volatility timing coefficient, as follows:

$$H_0: \delta_i = 0 \text{ and } H_1: \delta_i > 0 \text{ for positive volatility timing funds}$$

$$H_0: \delta_i = 0 \text{ and } H_1: \delta_i < 0 \text{ for negative volatility timing funds}$$

Using the volatility timing model specified in Eq. (2.2), I run a series of time series regressions for each fund i and note the sign and significance. A positive (negative) significant δ_i would indicate a procyclical (countercyclical) volatility timing strategy. Given this approach to the universe of SRI funds, Table 2.2 summarises the results.

[PLEASE INSERT TABLE 2.2 HERE]

Table 2.2 shows that the number of funds with significant evidence of volatility timing is quite small compared to funds that have no volatility timing. The results for the conventional fund portfolio may potentially be problematic, since the matched conventional fund portfolio itself is comprised of three separate equally weighted funds. However, I interpret this as the average timing strategy of the three combined matched funds.

Kim and In (2012) examine the volatility timing abilities of U.S. conventional mutual fund managers over a similar period, but with quite different results. Their result shows that 48.5% of U.S. mutual funds have some form of market timing tendency. Since the conventional funds in the sample are matched to the SRI fund investment style, that is, the Lipper classification code, there is an inherent bias towards large-cap investments for both SRI and conventional funds. This heavier weighting towards large-cap investments could be the cause of the differences in results, since a fund's investment style is related to its volatility timing strategy (Giambona and Golec, 2009). I disaggregate the results from Table 2.2 based on Lipper classifications and present the results in Table 2.3.

[PLEASE INSERT TABLE 2.3 HERE]

Table 2.3 presents a more disaggregated level of analysis than in Table 2.2, first subdividing the funds into their Lipper classification codes. The variables *Significantly Negative* and *Significantly Positive* indicate the numbers of funds with $\delta_i < 0$ and $\delta_i > 0$ beyond the usual 5% level of significance, respectively, and *Not Significantly Negative* and *Not Significantly Positive* indicate the numbers of funds that have a negative or positive coefficient, but with less than the 5% level of significance.

Given the rather limited number of SRI funds, a number of Lipper classification codes have no observations, such as small-cap value funds (SCVE). With the exception of multi-cap value funds (MLVE), which exhibit negative volatility timing, small-cap core funds seem to have a higher proportion of negative volatility timing, at 37.5%. Equity income, large-cap growth, large-cap value, mid-cap value, and small-cap growth funds all exhibit no significant negative volatility timing at all.

In terms of positive volatility timing, small-cap growth funds (SCGE) exhibit a higher proportion of positive volatility timing, at 25%. The remaining funds all exhibit some form of positive volatility timing, again with the exception of multi-cap value funds, which suggests that SRI fund managers' preference for volatility timing depends on the fund's investment strategy.

2.4 Performance Measures and Results

The analysis thus far has yet to consider the performance differentials of funds. Indeed, there exists a disproportional difference in volatility timing between SRI and conventional funds. I again match the sample of SRI funds to an equally weighted conventional fund portfolio comprised of three non-SRI funds, based on investment style (measured by Lipper objectives), age, size (measured by total net assets), and, lastly, volatility timing characteristics.

Sticking to conventional measures of performance, I utilise the CAPM, Fama–French (1993) three-factor model (FF3), and the FF4C extension as follows:

$$R_{i,t} = \alpha_i + \beta_i^M R_{m,t} + \varepsilon_{i,t} \tag{2.3}$$

$$R_{i,t} = \alpha_i + \beta_i^M R_{m,t} + \beta_i^{SMB} SMB_t + \beta_i^{HML} HML_t + \varepsilon_{i,t} \tag{2.4}$$

$$R_{i,t} = \alpha_i + \beta_i^M R_{m,t} + \beta_i^{SMB} SMB_t + \beta_i^{HML} HML_t + \beta_i^{WML} WML_t + \varepsilon_{i,t} \tag{2.5}$$

where $R_{i,t} = r_t - r_{f,t}$, is the excess return of fund i at time t, α_i is the measure of the selectivity (risk-adjusted return) of fund i, $R_{m,t}$ is the excess market return at time t measured as the difference between the S&P 500 index and the one-month Treasury bill rate, SMB is the

return on the small-minus-big portfolio, HML is the high-minus-low portfolio return, WML is the winners-minus-losers momentum portfolio return, and $\varepsilon_{i,t}$ is the residual term.

[PLEASE INSERT TABLE 2.4 HERE]

To capture the effects of market regimes, I define the market crisis period based on National Bureau of Economic Research recession dates, which falls in line with the market *crisis* dates. I define the *crisis* dummy (C) to equal one if there is a crisis, and zero otherwise, and the *non-crisis* dummy (NC) to be the complement of C. To account for the market regime, I include the crisis dummies in Eqs. (2.6) to (2.8), respectively, as follows:

$$R_{i,t} = \alpha_i C + \alpha_i NC + \beta_i^M R_{m,t} + \varepsilon_{i,t} \tag{2.6}$$

$$R_{i,t} = \alpha_i C + \alpha_i NC + \beta_i^M R_{m,t} + \beta_i^{SMB} SMB_t + \beta_i^{HML} HML_t + \varepsilon_{i,t} \tag{2.7}$$

$$R_{i,t} = \alpha_i C + \alpha_i NC + \beta_i^M R_{m,t} + \beta_i^{SMB} SMB_t + \beta_i^{HML} HML_t + \beta_i^{WML} WML_t + \varepsilon_{i,t} \tag{2.8}$$

The results of Eqs. (2.3) to (2.5) across the full sample for both SRI and conventional funds are reported in Panel A of Table 2.4, while the results for Eqs. (2.6) to (2.8) are presented in Panel B. For presentation purposes, I report only an annualised alpha, which is a typical measure for risk-adjusted returns.

Overall, I find that, in the full sample, SRI funds statistically underperform their matched conventional funds by approximately 3.49–3.79%, depending on the model. This result is consistent with the traditional view that the imposition of SRI constraints onto a portfolio reduces performance (Geczy et al. 2005). However, when examining the subsample periods based on market crises, I find that underperformance is only significant in *non-crisis*

periods, and the statistical significance disappears in crisis periods, which is consistent with the view that socially responsible firms are less likely to face large negative events that frequently arise during periods of crisis (Nofsinger and Varma, 2014).

In the last set of analyses, I examine the potential of volatility timing and market conditions in a single framework. Given the nature of market crises leading to greater market volatility, I posit that, if market conditions truly drive the differences between SRI and conventional funds, then this pattern should exhibit itself most prominently across non–volatility timing funds as funds that time the volatility of the markets, should be able to more accurately time the volatility of markets then funds that do not time market volatility.

I thus re-evaluate Eqs. (2.6) to (2.8) across six portfolios: procyclical SRI (SRI^{+}), procyclical conventional (Con^{+}), countercyclical SRI (SRI^{-}), countercyclical conventional (Con^{-}), non-timing SRI ($SRI^{No-Timing}$), and non-timing conventional ($Con^{No-Timing}$). Since the method for deriving the volatility timing comes from factor pricing models, to avoid double estimation issues, I report the Sharpe (1966) ratio and the value at risk (VaR) measure in Table 2.5.

[PLEASE INSERT TABLE 2.5 HERE]

Contrary to the findings of Nofsinger and Varma (2014), the results show that, on average, $SRI^{No-Timing}$ consistently underperforms $CONV^{No-Timing}$, regardless of the market conditions or performance measure. Furthermore, it appears that only procyclical SRI funds outperform their conventional fund counterparts. This result suggests that skilled managers of SRI funds can time market volatility better than conventional fund managers. This finding is consistent with the view that SRI funds attract higher-quality employees and fund managers.

2.5 Conclusions

The focus of this chapter is to examine the cost of doing good from an investment perspective by utilising the unique properties associated with SRI mutual funds and comparing them to traditional funds. Since the prior literature finds mixed results regarding this issue (Rathner, 2013), this chapter contributes to the literature by further investigating whether differences between the two types of mutual funds can be explained by managerial skill, or, more specifically, fund volatility timing characteristics.

In the preliminary results, I utilise a standard multifactor volatility timing model and find that the proportions of SRI funds with procyclical and countercyclical timing are 8.97% and 10.26%, respectively. These results are similar to those of Giambona and Golec (2009) and Kim and In (2012), in that conventional mutual funds have been found to have approximately equivalent proportions of funds with procyclical and countercyclical volatility timing.

Relating this back to SRI funds, I find the overall proportion of SRI funds that exhibit volatility timing to be significantly different from conventional funds. Specifically, I find that 77.1% of SRI funds exhibit no volatility timing, compared to only 51.5% of conventional funds. This result could be driven by SRI fund managers already having to implement and manage various investment screens, which would be further complicated by additional strategies, such as volatility timing. Since I am partly motivated by the cost of doing good, measured here by the financial losses (gains) that SRI funds have over conventional funds, I use the FF3 model and the FF4C extension to measure risk-adjusted returns and also utilise the Sharpe ratio and VaR measures.

Using the full sample from 1990 to 2013, I find that SRI funds do not significantly underperform their matched conventional fund counterparts, even after taking into account managerial fees, which is in line with the results of Renneboog et al. (2008). Disaggregating

the analysis into whether a fund displays procyclical, countercyclical, or no timing characteristics, I find that SRI funds that exhibit procyclical volatility timing outperform other, non-timing SRI funds, which is consistent with the view of Giambona and Golec (2009). Additionally, procyclical SRI funds outperform conventional fund portfolios, but for non–volatility timing funds, SRI funds underperform conventional funds across the full sample.

Since Nofsinger and Varma (2014) find that the difference between SRI and conventional funds is driven by market conditions, I include a crisis dummy variable in the FF3F and FF4C models and find that the underperformance of SRI funds is significant during non-crisis periods, but not during crisis periods. One possible explanation is that actively managed mutual funds tend to underperform unconditionally, but they are valuable to investors, since they deliver superior returns during poor economic states (Moskowitz, 1972; Glode, 2011). However, this explanation ignores managerial skill in timing the markets. I therefore again match the SRI funds to equally weighted conventional fund portfolios by investment style, age, size, and volatility timing characteristics. Calculating the Sharpe ratio and VaR measures for each of the classifications, I find that, on average, SRI funds that exhibit no volatility timing underperform, regardless of the market regime. However procyclical (countercyclical) SRI funds outperform (underperform) conventional funds in crisis periods. This result leads to the conclusion that it is not the market regime that drives SRI underperformance, but managerial skill in timing market volatility.

Overall, although SRI funds have a tendency to underperform their conventional fund counterparts, once matched by size, age, investment style, and strategies and examined across market conditions, I find strong evidence that the underperformance between fund types disappears due to skilled fund managers. This result supports the conjecture that SRI funds attract higher-skilled employees, namely, fund managers.

CHAPTER 3: EFFECT OF CSR ON SHAREHOLDER AND BONDHOLDER WEALTH

3.1 Introduction

According to the World Business Council for Sustainable Development, corporate social responsibility (CSR) can be defined as '*the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community, environment, and society at large'* (World Business Council for Sustainable Development, 2016, p. 6). While the notion of CSR is not entirely new, its popularity has increased over the past couple of decades (Starks, 2009). For example, KPMG (2015) documents that firms are increasingly reporting their CSR activities, with reporting rising from 45% to 92% between 2002 and 2015 amongst the top 250 firms globally. Additionally, investment in CSR has also grown significantly, as Smith (2014) reports, with Fortune Global 500 companies spending more than $15.2 billion a year on CSR. Clearly, the increase in resources shows that CSR must derive some benefit. Unfortunately, this corporate trend in CSR is not necessarily good news to investors, given that the motives of such actions vary. Even when the motives do signal responsible and ethical behaviour, they might not necessarily lead to firm value maximisation for a variety of reasons, such as increased agency costs (Cheng, Hong, and Shue, 2013; Kruger, 2015).

This growing movement of firms engaging in CSR has led many researchers to question the fundamental credibility of CSR; namely, do firms that engage in CSR perform better financially? In a McKinsey & Company (2009) survey of what U.S. investment professionals think about CSR, 'a vast majority find it difficult to value CSR and hence do not factor it into their valuations'. Edmans (2011) further corroborates this claim by finding employee satisfaction correlated to superior long-run stock returns, suggesting that CSR can indeed lead to superior firm wealth in the long run, but it is not captured by the market. Hence, a more

fundamental question is whether the capital markets themselves *perceive* CSR to be wealth enhancing.

This study takes a different approach to the issue of credibility: rather than addressing the credibility of CSR by examining firm performance, I examine how shareholders and bondholders react to news relating to a firm's CSR activity and whether these wealth effects differ between shareholders and bondholders.

Clacher and Hagendorf (2012) argue that it is the capital markets that should be the final arbiters of whether CSR is genuinely value enhancing. While prior studies have examined the CSR effect on shareholder wealth (see for example, Flammer, 2013; Kruger, 2015; Shiu and Yang, 2017), few have done the same for bondholders. I argue that the investigation of both shareholders and bondholders is important because the CSR wealth effect could differ for different investor types. For example, Barnea and Rubin (2010) find that firms with higher proportions of insider shareholders overinvest, on average, in CSR, since they bear little of the cost in doing so. Due to bondholders being contractual claimholders of the firm, the cost of social responsibility might not be the same as that for shareholders who have a residual claim on firm value. This study make two key contributions to the literature on CSR and wealth effects.

First, by documenting CSR wealth effects by analysing both the share market and bond market reactions, I find a significant wealth loss to shareholders surrounding news about firm social irresponsibility, which is consistent with a CSR wealth-increasing explanation: firms that are more socially responsible pay a lower cost for their social indiscretions. I find that, when firms engage in CSR activities, bondholder wealth increases through increased abnormal bondholder returns; however, shareholder wealth declines, as denoted by negative abnormal returns (ARs). Specifically, the results indicate that shareholder wealth declines by 0.16%

while bondholder wealth increases by 0.05% over a three-day event window. Disaggregating the events into environmentally positive and socially positive news, I find shareholder ARs to be -0.12% and bondholder ARs to be 0.11% over a three-day event window for positive environmental events.

Second, given positive and negative ARs between shareholders and bondholders, respectively, this study contributes to the literature by testing for a CSR wealth transfer effect between the two. While wealth transfers have been documented in various corporate activities, such as spinoffs (Maxwell and Rao, 2003; Veld and Veld-Merkoulova 2008), there are yet to be studies that examine wealth transfers between bondholders and shareholders for CSR-based events. A wealth transfer effect could explain the results, since Benabou and Tirole (2010) suggest that CSR could increase agency costs in the form of managers accruing social prestige using shareholder wealth. I reason that the benefits of CSR, such as reduced risk (Nguyen, Kecskes, and Mansi, 2017), could lead to bondholders earning a benefit, but at little to no cost, given the contractual nature of bond investments, while shareholders are left to ultimately bear the majority of the cost for corporate social good. Following Maxwell and Rao (2003), I test for a wealth transfer effect and find a negative relationship between abnormal changes to the market value of equity and bonds. The result indicates that, on average, any abnormal changes in shareholder wealth are statistically and significantly inversely related to abnormal changes in bondholder wealth, but only when environmental events are examined.

The remainder of this chapter is structured as follows; Section 3.2 reviews the literature on CSR and its impact on shareholder and bondholder wealth from value-increasing and value-decreasing perspectives. Section 3.3 describes the firm- and event-level data and data collection process. Section 3.4 describes the event study framework, along with multivariate analysis. Section 3.5 presents the results and analysis, with Section 3.6 concluding with key findings.

3.2 Literature Review

Prior studies on CSR and firm value lead to mixed results. Geczy et al. (2005), Renneboog et al. (2008), and Brammer and Pavelin (2006), for example, find evidence that firms engaging in CSR demonstrate underperformance. Conversely, Kempf and Osthoff (2007) and Gil-Bazo et al. (2010), amongst others, find a positive correlation between CSR and firm performance. In a meta-study, Margolis, Elfenbein, and Walsh (2009) conclude that '[t]he overall effect is positive but small' and that 'researchers have grounds for continuing to look for an empirical' (Margolis, Elfenbein, and Walsh, 2009, p. 2).

This section explores the prior literature related to CSR and shareholder wealth. Further examination is then conducted into CSR and bondholder performance studies.

3.2.1 Wealth-Increasing Hypothesis

Advocates of CSR often argue that, in today's society, firms are judged not merely by the results they achieve, but also how they achieve them. CSR can provide the 'license to operate' that society demands of successful corporations (Post, Preston, and Sachs, 2002). Establishing legitimacy can be as crucial as financial returns in the ongoing success of operations (Campbell, 2007). Hart and Zingales (2017) further contend that a firm's goals should be to maximise shareholder welfare, which can potentially be achieved through CSR. Some of the arguments put forth for CSR are that social activities provide value-increasing benefits, such as stronger labour conditions, improved firm performance and profitability, and better risk management.

Strong social performance can be a proxy for strong labour conditions, where 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 programme is to help ‘attract and retain valuable talent’ (Pereira, 2003, p. 1). Furthermore, increased employee motivation can be a key driver, since ‘people are seeking meaning at work … moreover, it has become clear that staff motivation is a powerful bottom-line benefit of corporate responsibility’ (Murray, 2007, p. 11). Indeed, in a recent study, Edmans, Li, and Zhang (2014) find that firms with higher employee satisfaction also increase profits through quality employee recruitment, higher employee retention/lower employee turnover, and increased motivation, which lead to increased productivity. This result falls in line with *efficiency wage theory*, which suggests generous compensation motivates greater employee productivity (Hart and Moore, 2008).

Socially responsible behaviour can also indicate managerial skills. Evidence of a CSR policy requires a commitment to CSR from all levels of the firm, which requires forward thinking and long-term–oriented management (Guenster, Bauer, Derwal, and Koedijk, 2011). Additionally, 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 might be able to avoid issues such as inadequate human rights protection (e.g. Royal Dutch/Shell) or a reputation for brutality and child labour (e.g. Nike). These examples show that firms with a short-term orientation can suffer significant lawsuits, financial losses, and considerable reputational damage.

Moreover, advocates of CSR contend that CSR can increase firm performance through various means, such as increased reputation and publicity. Byun and Oh (2018) examine the public relations aspect of CSR and find that firms that engage in CSR activities gain greater media attention, and it is this media attention that creates value for the firm. Shiu and Yang (2017) examine the aspect of reputation and find that a firm’s prior investments into CSR build up social capital that is consumed when the firm negatively impacts on environmental and social (E&S) aspects. More specifically, Shiu and Yang (2017) find that negative shareholder

reaction to firm social irresponsibility tends to be lower in firms with stronger prior E&S performance.

Lastly, CSR can contribute to improving firm value not just through increased productivity and profitability, but also by reducing risk, specifically, cash flow risk. As part of a firm's risk management efforts, CSR strategies are often adopted. In particular, CSR can provide an effective mechanism to avoid or mitigate risks related to litigation by employees (Zhang, 2005), labour union disputes (Chen, Kacperczyk, and Ortiz-Molina, 2011), regulatory constraints, and environmental penalties. For example, Chava (2014) finds that firms with stronger CSR can decrease the likelihood and expense of legal action, regulation, or legislation against the firm. Similarly, greater customer loyalty can decrease firm risk through troubled times (Albuquerque, Durnev, and Koskinen, 2016).

Based on the above discussion, if CSR is a value-increasing activity for the firm (value-increasing hypothesis), I expect investors to respond positively to socially responsible events, since these would signal stronger firm performance, productivity, and fundamentals or a means of achieving some nonfinancial altruistic 'warm glow' (Benabou and Tirole, 2010). If investors do view CSR as a wealth-increasing activity, market reactions to news regarding a firm's social responsibility (*positive* events) should be positive. Similarly, prior studies on CSR and bonds find evidence to support the wealth-increasing hypothesis. Menz (2010) examines the effect of CSR on eurobonds and finds the relationship to be nonsignificant albeit positive, given the sample, and concludes that 'CSR has apparently not yet been incorporated into the pricing of corporate bond' (Menz, 2010, p. 117). Bauer and Hann (2010) provide further evidence to support the CSR and bondholder wealth-increasing effect by showing that environmental performance risk management improves credit quality and ratings. Although the authors do not focus on the social aspect of CSR, I would expect, a priori, the same to hold true for social issues relating to firm CSR. I thus define the first hypothesis as follows.

H1: Events identifying a firm as being socially *responsible* are associated with increases in firm value, since *positive* CSR events are associated with positive abnormal stockholder and bondholder returns (wealth-increasing hypothesis).

Similarly, the costs of not managing social risks can be substantial. For example, British Petroleum's Deepwater Horizon incident 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, Tharyan, and Whittaker, 2013, p. 635). Companies could take the initiative to self-regulate by reducing emissions, to pre-empt legislation that could impose even tighter standards (Bradsher and Revkin, 2001).

Given that firm *social irresponsibility* increases firm costs and can thereby decrease firm profitability, I hypothesise that both shareholders and bondholders would react negatively to such indiscretions. More specifically, I define the second hypothesis as follows:

H2: Events identifying a firm as being socially *irresponsible* are associated with decreases in firm value, since *negative* CSR events are associated with negative abnormal stockholder and bondholder returns (wealth-increasing hypothesis).

3.2.2 Wealth-Decreasing Hypothesis

Friedman's (1970) negative view of CSR contends that managers are simply ill equipped in the art of societal needs and that the betterment of society should be left to governments or individuals instead. In this line of reasoning and in the extreme, one can consider an organisation that predicates its business on improving social and environmental welfare as either a charity or a government agency. Ultimately, even if there are benefits to be gained from firms investing in CSR, any realised benefits are simply 'too difficult to measure and

therefore appear to have direct costs outweighing any measurable benefits' (Clark and Veihs, 2014). For example, observers have noted that the donation by Merck & Co., one of the world's largest pharmaceutical companies, of 2.5 billion tablets of Mectizan[5] since 1987 has brought the firm little, if any, financial benefit (Dizik, 2009).

In addition to the direct costs of CSR, there are also indirect costs. For example, if firms are avoiding lucrative business opportunities due to social concerns or norms, the cost of pursuing such a social agenda is further compounded, since that would ostensibly lower firm performance. Furthermore, Friedman (1970) suggests 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. Hence, CSR is seen as neither contributing to nor enhancing firm value or, therefore, shareholder wealth (Benabou and Tirole, 2010).

According to Jensen and Meckling (1976), agency theory proposes that a firm exists in a world parallel to a 'nexus of contracts' between managers (agent) and their shareholders (principal). When both parties to this contract strive to maximise their utility, conflicts of interest can arise between managers and shareholders, such as perquisite consumption, empire building, manipulating financial figures to increase bonuses, and enacting antitakeover defences to protect positions. Benabou and Tirole (2010) extend agency theory to CSR and argue that investments in CSR activities can produce considerable managerial benefits. These benefits are often obtained to the detriment of maximising shareholder wealth. For instance, CSR can be used by managers to enhance their reputation/image in communities, gain better career opportunities, and increase negotiating power (Benabou and Tirole, 2010).

[5] Mectizan is a drug used to eliminate river blindness in Africa, Latin America, and the Middle East.

Additionally, managers could pursue specific social agendas (e.g. labour-friendly programmes) as a quid pro quo, in which key stakeholders may be more likely to ignore managerial excesses in exchange for socially responsible benefits (e.g. above-market wages and generous paid parental leave). Therefore, under the premise that shareholders prefer to use company resources for other activities, such as firm reinvestment for growth or higher dividends, CSR can be argued, from an agency theory perspective, to be a value-decreasing activity through the direct and indirect wealth transfer from shareholders to other stakeholders. Interesting, from this perspective, bondholders would not be as likely to experience a wealth decrease, given that bondholders are contractual claimants to cash flow.

Based on the above discussion, if shareholders view CSR as a discretionary waste of wealth or agency concern, a *negative* reaction should be associated with firm social responsibility (*positive* events). Similarly, bondholders would perceive a wealth decrease only in instances in which the investments in CSR are excessive and reduce overall firm liquidity without any measurable return. This leads to the next hypothesis, as follows.

H3: *Positive* CSR events are associated with *negative* abnormal stockholder and bondholder returns (wealth-decreasing hypothesis).

H4: *Negative* CSR events are associated with *positive* abnormal stockholder and bondholder returns (wealth-decreasing hypothesis).

3.3 Data and Event Selection

In this section, firm-level data are summarised and discussed, along with the event data collection process, followed by summary statistics. My analysis is based on a manually

collected sample of 2,928 events across 305 U.S. firms. I first discuss the firm sample and event collection process.

3.3.1 Firm Sample

I start the empirical analysis with the universe of U.S. firms listed in the Thomson Reuters ASSET4 database. The ASSET4 database contains records on firm social and environmental practices across 403,043 firms, starting from 2002. Each firm is provided weighted average index scores based on how environmentally responsible and how socially responsible the firm is for a particular year. These scores are based on over 144 data points (see Table A4.4 in Appendix C). I also control for corporate governance using the ASSET4 governance measure (GOV).

In a recent study, Shiu and Yang (2017) find that firm engagement in CSR provides insurance-like effects on both stock and bond prices, suggesting a need to control for firm historical CSR. To control for an insurance-like effect (Shiu and Yang, 2017), I collect data on firm historical E&S responsibility performance via the Thomson Reuters ASSET4 database. The ASSET4 database contains measures that provide a rating on individual firms' E&S responsibility dating back to 2002, as well as proprietary weighted average index scores for environmental and social responsibility, respectively.[6] At the time of data collection, the ASSET4 database contained 1,127 U.S. firms between 2002 and 2015.

Because the regression analysis involves control variables, I match the ASSET4 E&S ratings with firm financial data from Worldscope, Datastream, and the Center for Research in

[6] The ASSET4 database also includes information on governance-related issues, which I have excluded from the analysis, because these are beyond the scope of the analysis.

Security Prices for each firm–year. To examine the effect of CSR news events on both shareholder and bondholder wealth, I further require firms to have at least one corporate bond actively traded in my sample, as reported by Datastream.[7] The additional requirement of a firm having a corporate bond within the sample period as reported by Datastream reduces the sample from 1,127 to 541 U.S. firms.

Since I am interested in short-run market reactions to CSR activities, I source CSR events for the above sample of 541 U.S. firms through news articles and other media press releases in Factiva that relate to a firm's CSR activities. To reduce the number of articles unrelated to CSR activities, I refined the search criteria to 46 subject classifications relating to environmental and/or social responsibility (see Table A3.2 in Appendix A). I restrict the search to major U.S. sources only because I assume any important CSR news will be captured by the major U.S. news outlets. I use the first date of the news publication as the event date and exclude any repeat events that fall within $t + 2$ days of the initial event date ($t = 0$). Any subjects/articles identified as or related to corporate governance are excluded, since this aspect is beyond the scope of the research question and many prior studies have already examined the impact of corporate governance (Kruger, 2015). A number of firms within the sample were further excluded, since they simply did not experience any social or environmental event during the sample period. The final sample then comprises 3,083 events across 305 firms between 2002 and 2015. Table 3.1 presents the distribution of the sample events.

[PLEASE INSERT TABLE 3.1 HERE]

Table 3.1 reports the summary statistics for the overall sample. The firms in the sample are generally more environmentally and socially responsible than the typical firm in the

[7] While Datastream provides information on daily bond prices, data on the issuing firm are only provided using the company name, which requires a manual match to the firm's official listing name.

ASSET4 database, as indicated by a mean (median) *ENV* and *SOC* scores of 62.5 (34.2) and 61.2 (34.3), respectively. Given that the mean *ENV* and *SOC* scores across the entire ASSET4 universe of firms are 50 by construction, the sample appears slightly skewed towards more socially responsible firms. The standard deviation for *ENV* and *SOC* is then sufficiently large so that my sample contains both highly responsible firms and irresponsible firms.

Firm size is used and defined here as the natural logarithm of total market capitalisation. Revenue is also highlighted to indicate the relative operational size of firms. Finally, leverage (*LEV*) is used to control for firm risk and is defined as *total liabilities over total assets*.

3.3.2 Event Selection

Byun and Oh (2018) find that increased media coverage of CSR activities positively impacts shareholder value. Additionally, given that no readily available data on CSR are updated *frequently*, following Shiu and Yang (2017), I argue that investors attempting to evaluate the overall CSR performance of a firm could resort to their interpretations of popular financial press instead.

Following Byun and Oh (2018), I use the Factiva news database to identify events based on news relating to firm CSR activities. The event date is taken to be the date of the news publication as reported by Factiva. I assume that news originating outside the United States regarding a firm will also be captured by major U.S. sources, and I therefore limit the search parameters to major U.S. news and business sources[8].

Given that a firm could have numerous events and articles published that are irrelevant to the study, I refine the search criteria by using Factiva's article subject classification system.

[8] Given the events are retrieved from major U.S. news sources, I assume that such events are newsworthy.

Factiva's database identifies and uses 46 subject categories that fit my criteria of being related to CSR.[9] I exclude any subjects/articles identified or related to corporate governance, since it is beyond the scope of this study. A number of firms within the sample are further eliminated due to no events being identified within the sample period. This initial filtering provides a sample of 3,083 events across 305 firms during the sample period from January 2002 to July 2015.

To provide a further disaggregated analysis, I follow Kruger (2015) and define events as either environmental or social as follows: events that contain subject labels relating to *environmental recognition, disasters and accidents,* and events relating to a firms *emissions consumption* or *resource consumption* are defined as environmental events; events that relate to *product safety, community, employment quality, health and safety,* or *human rights and diversity* are defined as social events. In some instances, Factiva can classify the subject of an article as being related to both social and environmental issues, in which case the event is identified under both E&S categories.

Since news events could pertain to a firm being more socially responsible or irresponsible, articles are further classified as either *positive* or *negative* news, based on their *sentiment*. Factiva itself provides an article sentiment rating and will denote whether an article is positive or negative. For robustness, however, I follow Deak and Karali (2014) and use textual analysis on each article, where the degree of positive and negative words is used to associate the event as being either socially responsible (positive event) or socially irresponsible (negative event). Specifically, I use Deak and Karali's lists of keywords – such as *award,*

[9] Please refer to Table A3.2 in Appendix B for an example of the Factiva category settings.

celebrate, honour, prize, and *recognition* and *disaster, activists, boycott, and disaster* – to identify positive and negative events, respectively.

Some events are reported on multiple occasions by the same source, typically to update about a particular incident; for example, a chemical factory explosion occurs on a particular date and a further article is published following up on the incident. Any events that fall within 10 days of a previous article publication are removed to avoid confounding effects. Since CSR events could also be systematically occurring around other announcements as a form of window dressing, all events that occur around earnings announcements, merger and acquisition activity, and financing activities are removed. The final sample, after such events are filtered out, contains 2,928 events across 305 firms and is summarised in Table 3.2 below.

[PLEASE INSERT TABLE 3.2 HERE]

Table 3.2 presents the distribution of events by E&S classification and whether the event identifies the firm as being socially responsible (positive events) or socially irresponsible (negative events). Panel A show that, while 35.4% of articles are related to environmental issues, a larger proportion of events are related to social issues (69.3%). Part of the reason behind this could be the large variability of types of events that are classified as social issues compared to environmental issues (see Figure A3.1 in Appendix B). Additionally, the distribution of events identified as positive events (56.6%) and negative events (43.4%) shows bias towards firms being represented as socially responsible, compared to social irresponsible, since there are more instances of positive CSR events relative to negative events.

Panel B of Table 3.2 shows the disaggregation of events by Factiva's classification. The largest type of negative E&S event is based on employment quality–related issues, such as labour disputes (19.9%). Firms seem to engage in positive E&S the most, as evidenced by the high proportion of events relating to positive community events (18.7%). The least represented

subclassification of events is disasters and accidents (4.3%) issues relating to rights and diversity (7.1%).

Overall, while there exists some bias towards events identified as being *positive* and classified as social, the variability by subclassification is significant across the social dimension of activities.

3.4 Methodology

Clarke and Veihs (2014) attribute the lack of consistent results between studies to measurement error. The exact nature of CSR measurement is often debated, and the definition of CSR can sometimes be qualitative rather than quantitative. In addition, converting qualitative factors into a binary might not capture the dynamics of how well perceived such features are. For example, while it is possible to measure the amount of capital required for community engagement activities, the benefits of such programmes are difficult to measure, partly because of the nature of said activities. Even if a firm could quantify such benefits through surveys, this process is often costly and not readily available to the public. As an external stakeholder, investors are more likely to evaluate their assessment of a firm's level of social and environmental impact through the use of popular financial media. Examining the point when investors update their beliefs regarding a firm's CSR is thus akin to viewing investor's attitudes towards the CSR event (Kruger, 2015). Ultimately, examination of the reactions of investors, as reflected in the change in market valuations, allows for a study of CSR at the moment investors update their beliefs regarding a firm's CSR. This study approaches the measurement of CSR by examining investor reactions to CSR-related events in an event study framework.

Section 3.4.1 discusses the methodology of measuring shareholder reactions to CSR events through share price ARs. Section 3.4.2 further discusses the calculation of bond premium returns.

3.4.1 Estimation of Abnormal Share Returns

An event study framework is used to examine shareholder reactions to firm CSR events through ARs and *cumulative ARs* (CARs). Following Kruger (2015), daily ARs are obtained by estimating market model parameters for each firm event, using an estimation period from *t* - 250 to *t* - 50 trading days, where *t* is the event date. The estimated parameters are then used to forecast returns surrounding the event date, and the ARs for event i and event day t are defined as

$$AR_{i,t} = r_{it} - \widehat{a_1} - \widehat{b_1} \cdot r_{vw,t} \tag{3.1}$$

where $\widehat{a_i}$ and $\widehat{b_i}$ are the estimated market model parameters, $r_{i,t}$ is firm *i*'s returns at time *t*, and $r_{vw,t}$ is the value-weighted market index return on event day t. Here the Standard & Poor's 500 index is used as the benchmark value-weighted market index in the regressions. All returns are calculated as $r_{i,t} = 100 \times (\ln P_{i,t} - \ln P_{i,t-1})$, where $P_{i,t}$ is the stock price of company i on day t. The CAR for firm i over event window $[-s, s]$ for event date t_0 is

$$CAR_{i,t}[-S,S] = \sum_{t=t_0-s}^{t_o+s} \widehat{AR}_{i,t} = \sum_{t=t_0-s}^{t_o+s} r_{it} - \hat{a}_i - \hat{b}_i \cdot r_{vw,t} \tag{3.2}$$

I use multiple configurations of event windows when it comes to calculating CAR, namely, [-1,+1], [-5,+5], and [-10,+10] for all events in the sample, and I then disaggregate the

results according to whether the event is positive or negative, and social or environmental. Since the results for CAR[-10, 10] are found to be similar to those for [-1, +1] and [-5, +5], for the sake of brevity, only the results for the three- and 11-day windows surrounding the event are shown. For robustness, the Fama–French (1993) three-factor model is also used to calculate the ARs, as follows:

$$AR_{i,t} = r_{it} - \widehat{\alpha_i} - \widehat{b_1} \cdot r_{vw,t} - \widehat{b_2} \cdot r_{SMB,t} - \widehat{b_3} \cdot r_{HML,t} \quad (3.3)$$

where $r_{SMB,t}$ refers to the return on the small-minus-big portfolio at time t, and $r_{HML,t}$ is the return on the high-minus-low portfolio at time t.[10]

3.4.2 Estimation of Bond Premium Returns

Bond premium returns are used to capture the reactions of bondholders to CSR events and are based on the method of Handjinicolaou and Kalay (1984). This approach is common in the literature relating to bondholder reactions (see for example, Veld and Veld-Merkoulova, 2008) since it adjusts for infrequent trading to measure abnormal bond returns over the event period. The returns on the rating- and maturity-matched corporate bond indexes of Merrill Lynch are proxies for bond market index returns. The estimation window for the abnormal bond return calculation is the period from day *t* - 65 to day *t* - 21. A 45-trading day period is used to minimise the potential impact of credit spread changes.

The premium bond return between two bond trades is the difference between the return on the bond and the corresponding index return over the same period:

$$PR_{i,n(i,k)} = R_{i,n(i,k)} - IR_{i,n(i,k)} \quad (3.4)$$

[10] Both SMB and HML portfolio returns are obtained from Kenneth French's data library. See https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

where $R_{i,n(i,k)}$ stands for corporate bond i's return from trading date $n(i,k-1)$ to trading date $n(i,k)$, and $IR_{i,n(i,k)}$ is the matching index return over the same time period.

The estimated mean m_i and standard deviation s_i of the premium return are defined as

$$m_i = \frac{1}{K-1}\sum_{k=2}^{K}\left(\frac{PR_{i,n(i,k)}}{n(i,k)-n(i,k-1)}\right) \tag{3.5}$$

$$s_i^2 = \frac{1}{K-2}\sum_{k=2}^{K}\left(\frac{PR_{i,n(i,k)}}{\sqrt{n(i,k)-n(i,k-1)}} - m_i\sqrt{n(i,k)-n(i,k-1)}\right)^2 \tag{3.6}$$

where K is the number of days in which bond i was traded during the estimation period.

The abnormal bond returns are estimated using the mean premium return as follows:

$$AR_{i,n(i,k)} = PR_{i,n(i,k)} - m_i\big(n(i,k)-n(i,k-1)\big) \tag{3.7}$$

The standardised AR is equal to

$$SAR_{imn(i,k)} = \frac{AR_{i,n(i,k)}}{s_i\sqrt{n(i,k)-n(i,k-1)}} \tag{3.8}$$

The standardised and average abnormal portfolio returns for each event window include only those bonds that are traded on the last day and the day directly preceding the event period. Following Veld and Veld-Merkoulova (2008), the test statistics for these observations is defined as

$$Z_t = \frac{\sum_{i=1}^{n_t} SAR_{i,t}}{\sqrt{n_i \cdot N}} \tag{3.9}$$

where t is the event window, n_t is the number of observations included for a given event window, and N is the number of days in the event window. This statistic has a standard normal distribution under the assumption of cross-sectional bond return independence.

Note that, in some cases, there is more than one bond available for a firm in the sample. Following Veld and Veld-Merkoulova (2008), the median bond return for each firm is used as a proxy for the firm's bondholder return.

3.5 Results

3.5.1 Shareholder ARs

In this section, I present the results for shareholder and bondholder ARs surrounding CSR events. Using an event study framework, I estimate and calculate the cumulative abnormal shareholder return (CAR) statistics based on the market CAPM. The results are presented in Table 3.3.

[PLEASE INSERT TABLE 3.3 HERE]

Each panel in Table 3.3 represents a subclassification of events, as defined previously. The table shows that the average shareholder CARs over a three-day and an 11-day event window, respectively, are equal to -0.1558% and -0.2050%. Using the test statistic previously defined, the results are significant at the 1% and 5% levels, respectively.

Further examination into the classification of events as either *positive* (Table 3.3, Panel B) or *negative* events (Table 3.3, Panel C) shows that shareholders, on average, experience a three-day abnormal loss in the case of either positive or negative CSR news. The loss appears to persist across the longer event window of 11 day for positive events, but not for negative

events, suggesting that markets are quicker at incorporating negative CSR shocks into prices than positive shocks.

Disaggregating the results along the E&S dimension yields Panel D of Table 3.3, which presents the results for only *positive* environmental events; Panel E, which presents the results for only *positive* social events; Panel F, which presents the results for only *negative* environmental events; and Panel G, which presents the results for only *negative* social events. I find that the abnormal shareholder loss found in Panel A of Table 3.3 is mostly attributable to the significant abnormal loss during *positive social* events (-0.2077%) and partially driven by positive *environment* events (-0.1732%).

For robustness, I also estimate the shareholder CAR using the Fama–French three-factor market model and present the results in Table 3.4.

[PLEASE INSERT TABLE 3.4 HERE]

Table 3.4 shows that events relating to CSR lead to an average abnormal loss of 0.1845% (0.2761%) over a three-day (11-day) event window. I further find cumulative abnormal three-day *losses* to shareholders of about 0.2801% and about 0.1115% for all negative and positive events, respectively. The results using the Fama–French three-factor market model remain consistent with the findings from the market CAPM approach.

Overall, the results from Tables 3.3 and 3.4 show mixed support for the wealth-increasing hypothesis. For instance, when information about a firm's social *irresponsibility* become public, shareholders incur economically significant losses. Such evidence is consistent with the view that corporate social irresponsibility can lead to financial outflows. This result is consistent with the work of Karpoff, Lott, and Wehrly (2005), who suggest that the adverse reactions of capital markets to firm irresponsibility are possibly due to the financial costs that

are often attached with social and environmental misdemeanours (i.e. fines, litigations) and, therefore, avoiding such adverse events would be beneficial to the firm and its claimants. While these results are a necessary condition for the wealth-increasing hypothesis, that is, there is a cost associated with social irresponsibility, the result in and of itself is an insufficient condition to claim CSR is wealth increasing. To be truly wealth increasing, the part that a firm controls is the positive events, and these are not associated with any wealth increases. Based on the panel of results relating to *positive* events, I find insufficient evidence to suggest that shareholders view firm CSR as a wealth-increasing activity, given the negative ARs associated with firms being more socially responsible.

One possible explanation for the above-mentioned wealth decrease is that shareholders, by nature, are residual cash flow claimants, and excess funds paid out to society would lead to a lower payout to shareholders, by extension. For example, Abowd (1989) finds that announcements of pay increases reduce market valuations dollar for dollar; Gorton and Schmid (2004) show that greater employee involvement reduces firm value; and Kruger (2015) argues that community-related events are often concerned with charitable giving or pro bono work in communities and that shareholders could perceive this as a negative cash flow shock. Based on these prior studies and the results in Tables 3.3 and 3.4, it would appear that, while firms are punished for being socially irresponsible, overinvestment in firm social responsibility could be viewed by the markets as a wasteful act of shareholder wealth at the discretion of managers (Friedman, 1970).

3.5.2 Bondholder ARs

Table 3.5 presents the results for bondholder CARs disaggregated into positive and negative events, and by E&S dimensions.

[PLEASE INSERT TABLE 3.5 HERE]

Based on Table 3.5, I document an overall increase in bondholder wealth across the entire sample of events. Specifically, over the three- and 11-day event windows, I find the average bondholder CARs are 0.0521% and 0.0969%, respectively. Panels B and C show that disaggregating bondholder ARs into positive or negative events yields statistically nonsignificant results. Further examination into the E&S dimensions does show, however, that bondholder ARs appear to be significant for positive environmental events, with a three-day CAR of about 0.1085%, or 10.85 basis points. The positive and significant results of the ARs surrounding *positive environmental* events indicate that the bond market perceives an overall wealth increase when firms engage in environmentally responsible activities. This evidence is consistent with the evidence of Bauer and Hann (2010), who find that the 'environmental management of firms has value implications for bond investors' (Bauer and Hann, 2010, p. 3). Interestingly, there is little evidence that bondholders are adversely affected by corporate social irresponsibility. Overall, the results for bondholder ARs provide evidence to support the wealth-increasing hypothesis: CSR is wealth increasing for bondholders, as indicated by the positive ARs surrounding positive environmental events. This evidence in favour of the wealth-increasing hypothesis is, however, limited to environmental positive events, since it does not extend to other forms of CSR activities, such as events relating to community engagement, human rights issues, and the like.

Given that bondholders experience a wealth increase when firms are more environmentally responsible and shareholders experience a wealth loss across the same events, the overall conclusion as to whether CSR leads to a wealth increase appears to depend on the type of investor. This result is similar to that of Barnett (2007), who find differences between internal and external shareholder attitudes towards CSR. One possible explanation behind the

contrasting shareholder and bondholder views involves the payoff function of the investor. This is discussed further in the next section.

3.5.3 Multivariate Analysis

The results from the CAR analysis suggest that, while CSR is partially viewed by capital markets to be a wealth-increasing activity, as noted by the wealth loss associated with socially irresponsible events, the gains in wealth, when disaggregated, are not necessarily viewed favourably by bondholders and shareholders alike. One possible explanation for this conflict between shareholders and bondholders is that shareholders could perceive CSR as a cost that outweighs any measurable benefits; however, given the contractual nature of the relationship bondholders have with the firm, bondholders bear little if any costs of the firm being more environmentally friendly. If CSR does indeed benefit bondholders, through reduced operational and/or environmental risks, while shareholders shoulder the costs, this would constitute a wealth transfer.

Wealth transfer effects have been well documented for other corporate activities such as spinoffs (Parrino, 1997; Maxwell and Rao, 2003; Veld and Veld-Merkoulova, 2008), seasoned equity offerings (Elliot, Prevost, and Rao, 2009), and share repurchases (Maxwell and Stephens, 2003). In the following section, I extend the prior literature and examine whether CSR has the potential to trigger a wealth transfer from shareholders to bondholders. To test the wealth transfer hypothesis, I follow Maxwell and Rao (2003) and state the following:

$$\Delta MV_{BOND_k} = \beta_0 + \beta_1 \Delta MV\_EQ_k + \sum_{j=1}^{4} \delta_j \times \Delta MV\_EQ_k \times Z_{j,k} + \beta_3 Size_i + \beta_4 ESG_i + u_i \quad (3.10)$$

where ΔMV_BOND_k represents the abnormal change in the market value of debt across event k as measured by the product of the three-day bondholder CAR and total debt outstanding; ΔMV_EQ_k represents the abnormal change in the stock value and is measured as the product of the three-day shareholder CAR and the market value of equity; $Z_{j,k}$ is a vector of j indicator variables that identify the type of event as either a positive environmental event (ENVPOS), a positive social event (SOCPOS), a negative environmental event (ENVNEG), or a negative social event (SOCNEG) and that take a value of one if event k belongs to classification j, and zero otherwise. The variable $Size_i$ controls for the size of firm i and is measured as the natural logarithm of total assets, and ESG_i is ASSET4's environmental, social, and governance index for firm i that takes a value between zero and 100, with 100 denoting the most socially responsible firm and zero the least socially responsible firm. The inclusion of the environmental, social, and governance variable is predominantly to control for other confounding effects that have been proposed by prior literature. For example, Shiu and Yang (2017) find evidence that shareholder reactions are moderated by prior investments due to an insurance-like effect, while Kruger (2015) finds that shareholder ARs surrounding positive CSR events are partially explained by agency costs, as measured by lower corporate governance.

The test of wealth transfers is therefore a one-tailed test on δ_j, as follows:

$$H_0: \delta_j \geq 0$$

$$H_1: \delta_j < 0$$

where j represents the four classifications and the identification of event portfolios.

Given my initial findings in Tables 3.3 to 3.5, the a priori expectation is a wealth transfer effect only for positive environmental events. For robustness, however, I examine all

other events for wealth transfers, but do not find any statistically significant evidence to suggest wealth transfers under other classifications. Table 3.6 presents the results of multivariate analysis on abnormal changes in market value.

[PLEASE INSERT TABLE 3.6 HERE]

The results in Table 3.6 show that, after year and firm fixed effects are controlled for, there is evidence, at the 10% level of significance, of a wealth transfer from shareholders to bondholders. Specifically, as the abnormal change in the market value of equity declines by 1%, the abnormal change in market value of debt increases by 0.0138%. This inverse relationship between the market value of equity and debt persists across both positive and negative environmental events, but not social events.

Overall, this result suggests that, as the abnormal change in the market value of equity declines, the abnormal change in the market value of bonds increases and I therefore find evidence to support the wealth transfer hypothesis. Additionally, even when accounting for gains to bondholders, the aggregate loss of shareholder wealth and therefore the wealth transfer hypothesis do not completely explain stockholder losses, suggesting wealth is potentially transferred to other stakeholders, such as managers (Kruger, 2015) or society itself (Friedman, 1970).

3.6. Conclusions

Prior studies in this area have often debated the validity of CSR and whether it enhances firm value or, if as Friedman (1970) suggests, it is a wasteful act of shareholder wealth at the discretion of managers. This study contributes to the literature by focusing on CSR's effects on bondholder and shareholder wealth and thereby examines the credibility of CSR from the

perspective of both bondholders and shareholders. To the best of my knowledge, this is also the first study to examine the potential wealth transfer effects between shareholders to bondholders within the context of CSR.

Within an event study framework, news article publication dates were collected via Factiva, and events were classified as environmentally or socially related and, using textual analysis, further identified as having a positive or negative sentiment. Using a market model approach, I calculated abnormal shareholder and bondholder returns. The CAR results by event classification indicate that, on average, shareholders experience an abnormal loss across the portfolios of all events, of all positive events, and of all negative events. The negative ARs to shareholders during negative events are consistent with the findings of Shiu and Yang (2017) and can be interpreted as evidence supporting the wealth-increasing hypothesis of CSR: firms that act irresponsibility towards society and the environment can lead to a decrease in wealth due to the costs associated with stakeholder conflict and the direct costs of litigation and regulatory compliance. Interestingly, I document a negative abnormal shareholder return surrounding events relating to firms behaving more socially and environmentally responsibly. This result suggests evidence of a cost of doing good.

Given the negative ARs to shareholders, my ex ante expectations are that such costs will manifest in the bond market as well; however, I find results suggesting otherwise. Specifically, I find that events relating to firms behaving more environmentally responsibly are associated with positive abnormal bondholder gains. This result suggests that, while CSR has the capacity to increase overall firm profitability, the wealth effects can differ, depending on whether I take the perspective of shareholders or bondholders.

Additionally, I suggest a wealth transfer hypothesis to explain the seemingly negative/positive wealth effects to shareholders and bondholders, respectively. Specifically, I

test the hypothesis that bondholder wealth gains are explained by shareholder wealth losses. Following Maxwell and Rao (2003), I examine abnormal changes in the market value of equity and bonds in the cross section of events. I find evidence at the 10% level of significance that an abnormal decline in the market value of equity leads to an abnormal increase in the market value of debt. The wealth transfer effect is, however, limited to positive environmental events. I also note that the magnitude of the decrease in shareholder wealth is not entirely explained by increases in bondholder wealth. This is to be expected, however, since the ultimate benefactor of firm social responsibility should be society itself.

While the prior literature on CSR finds potential wealth-increasing effects, the results suggest that managers need to be cautious of implementing CSR strategies. An underinvestment in CSR can cause deep-rooted problems within a firm that lead to costly stakeholder conflicts and decrease wealth, whereas overinvestments in CSR without an accurate measure of the benefits can lead to wealth transfers where shareholders are the ultimate cost bearer.

3.6.1 Limitations of the study

One of the key limitations of the study is that I assume all events have a homogeneous effect on shareholder and bondholder behaviours. Certain events may have a greater impact on investor beliefs than other events within the same categorisation. Measurement error is also of concern in the prior literature (Clarke and Veihs, 2014). However, such error would bias my results downward, and, if anything, correcting for such error would only strengthen the results.

Additionally, this chapter only examines the short-run reactions to CSR, to the extent that markets take time to digest the impact, it is possible that value-enhancements only manifest in long-run returns.

Finally, the identification strategy of events as either positive or negative, though necessary empirically, may lead to error insofar as investors have different preferences. I have attempted to alleviate issues surrounding subjectivity by following the prior literature (Kruger, 2015; Shiu and Yang, 2017) and using textual analysis, along with Factiva's proprietary text-based algorithm. However, future research into natural language programming and advances in machine learning could further improve the accuracy of the identification. Lastly, while I do find evidence to support a wealth transfer effect, I do not directly investigate its mechanisms by which the wealth transfer occurs. Future research could further investigate the specific mechanisms, such as the ability of CSR to reduce cash flow risk (Nguyen et al., 2017).

CHAPTER 4: INTERNATIONAL ANALYSIS OF CSR AND FIRM PERFORMANCE

4.1 Introduction

The World Bank Council for Sustainable Development defines corporate social responsibility (CSR) as 'the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community, environment, and society at large'. While the notion of CSR is not new, the past few decades have brought about an evolution in CSR, with more firms now dedicating resources towards CSR initiatives and its reporting. According to an industry report by McKinsey & Company (2009) find that the majority of chief financial officers and investment professionals agree that CSR is a value-increasing activity. Nonetheless, there is a lack of evidence to support such claims outside the United States. In other words, can a firm do well by doing good in a country/region outside of the United States? This study focuses on this question and further examines how country factors, such as social culture and the

regulatory environment, moderate the relationship between CSR and corporate financial performance (CFP).

Campbell (2007) argues that the benefits and costs associated with CSR vary from country to country, due to differences in social values, institutions, and stages of economic development. Recent studies find evidence in support of Campbell (2007) and demonstrate that the level of CSR varies significantly cross-nationally (Matten and Moon, 2008; Cai, Pan, and Statman, 2016; Liang and Renneboog, 2017; Dyck, Lins, Roth, and Wagner, 2019). Cai et al. (2016) find not only that country factors play a more significant role than firm factors in determining the level of firm CSR, but also that '*economic development*, *political systems*, and *social culture* also play an important role in explaining differences in [CSR] among countries' (p. 591). In this study, I do not attempt to examine cross-national variation in the *level* of CSR directly, but focus, instead, on cross-national differences in the *effects* CSR has on firm profitability.

There are many reasons why CSR can affect a firm's earnings and overall CFP. I focus on two key mechanisms rooted in institutional theory, as proposed by Campbell (2007). The author proposes that a firm's corporate behaviour is influenced by the institution in which it operates. I extend Campbell's proposition and argue that institutional factors, such as societal values and the regulatory environment, not only influence corporate behaviour but also play a role in moderating the effects of CSR on CFP. For example, from a social perspective, Edmans (2011) finds that more socially responsible firms attract better-quality employees and can lead to improved employee motivation, which, in turn, can lead to greater productivity and thus improve CFP. Servaes and Tamayo (2013) find that firms with greater CSR are rewarded with a better reputation and improved customer loyalty and that CSR drives CFP through improved customer relations. The issue with these findings is that, if I assume individuals to have heterogeneous values, then what constitutes responsible behaviour for one individual might not

necessarily align with what is deemed responsible behaviour for another. I therefore contend that it is the societal perception of a firm's social responsibility that underlies the marginal benefits associated with CSR.

This study contributes to the literature in a number of ways. First, among the studies that investigate CSR from an international perspective, most examine factors behind firms' differing levels of CSR across countries/regions (Matten and Moon, 2008; Cai et al., 2016; Liang and Renneboog, 2017; Bruer, Muller, Rosenback, and Salzmann, 2018; Dyck et al., 2019). These prior studies *assume* that corporate managers decide to invest in CSR. In this study, it is assumed that corporate managers, in their quest to maximise firm value, invest in CSR activities only when the marginal benefits *exceed* the marginal costs (Cai et al., 2016). However, this assumption requires corporate managers to have congruent ideals that align with the social values of the firm's immediate community and, further, to accurately measure the marginal benefits and costs associated with CSR. In this study, I argue that such assumptions could be too onerous for corporate managers. Of corporate managers and investment professionals who include CSR in their valuation of projects, a full quarter of respondents don't know what effect, if any, these activities have on shareholder value (McKinsey& Company, 2009). I avoid this issue by directly investigating the marginal benefits and costs of CSR on CFP.

Second, while there is a literature that investigates the CSR–CFP relationship, most studies only use a U.S. sample. An international perspective is particularly important, because it would allow me to examine whether and to what degree the outcomes of previous single-country studies are generalisable. If CSR and its effects on CFP are driven by social values, economic conditions, or legal factors, then a single-country study is not appropriate. By conducting a cross-country/region analysis, combining country- and firm-level data, I can draw a more contextualised picture of CSR than has been done before, as well as investigate the

economic consequences of the interaction between the social culture, economic conditions, and the legal environment on firm-level CSR. My approach allows for control of country-level factors and to provide evidence on how a country/region's social values, economic conditions, and legal environment affect the relationship between CSR and firm profitability, that is, CFP.

In this study, I perform a cross-country/region analysis by using data from the Thomson Reuters ASSET4 measures on firm CSR. While there are no generally accepted views as to which measure of CSR is most accurate, ASSET4's firm CSR rating is compiled from a list of 148 qualitative and quantitative measures that relate to environmental and social issues surrounding a firm. Additionally, various ASSET4 measures have begun to receive recognition as legitimate measures of CSR, as evident by their use in studies such as those of Liang and Renneboog (2017), Shiu and Yang (2017), Bruer et al. (2018), and Dyck et al. (2019). Dyck et al. (2019) also show that use of the ASSET4 CSR rating produces results quantitatively similar to those of other measures, such as Bloomberg's Sustainalytics ratings.

The remainder of this study is organised as follows; Section 2 briefly reviews the prior literature. Section 3 summarises the data and describes the sample. Section 4 outlines the empirical analysis and the results regarding the CSR–CFP relation. Lastly, Section 6 concludes the study.

4.2 Literature Review

Despite a vast and growing body of literature on CSR, defining CSR is not an easy task (Clarke and Viehs, 2014). I follow Campbell (2007) and define a firm as being socially responsible if they do 'not knowingly do anything that could harm their stakeholders—notably, their investors, employees, customers, suppliers, or the local community within which they operate' (Campbell, 2007, p. 951). I do not take a stance on whether a firm is inherently responsible or

irresponsible due to the nature of its business, since, again, different individual values and life experiences will drive each individual's ethical values. There exists a branch of the literature that I do not explore, due to its normative nature in *prescribing* what a firm should do, which is contrary to the scope of this study, where I attempt to *describe* the effects of firms' social responsibility on financial performance across different countries/regions.[11] The notion that individual values are based on our own experiences is what Friedrich (1937) refers to as moral relativity theory.

In the discussion that follows, I focus on two key areas: the first examines the effects of CSR on CFP and the underlying drivers of such a relationship; the second examines corporate social behaviour and explains what drives a firm to be more or less socially responsible than firms from different countries/regions.

4.2.1 The CSR–CFP Relationship

Despite a vast and growing body of financial literature on CSR, prior research on the exact nature of the CSR–CFP relationship is still widely debated. Generally, it is established that there exists a positive correlation between CSR and firm performance; however, such measurements can be biased for a number of reasons (Clarke and Veihs, 2014). Other studies, such as by Margolis et al. (2009), suggest that future research on the subject of CSR should focus on the causation, that is, the channels of CSR on CFP, rather than just statistical correlations. For example, Geczy et al. (2005), Renneboog et al. (2008), and Brammer and Pavelin (2006) all find that firm CSR does not lead to superior portfolio returns or firm earnings.

[11] This branch of literature stems from economic thought and philosophical principles with arguments against CSR by Friedman (1970), who suggests an approach more focused on shareholder wealth maximisation, and by Freeman (1984), who proposes an approach more focused on stakeholder wealth instead, that is, stakeholder theory.

Conversely, Waddock and Graves (1997), McWilliams and Siegel (2001), and Gil-Bazo et al. (2010) find that firms that are more socially responsible tend to have better financial profitability. In a meta-analysis of U.S.-based studies, Margolis et al. (2009, p. 15) conclude that 'while there tends to be a slightly *positive* relation between CSR and firm profitability, the result is marginal, and the direction of causation is often difficult to determine'. Recent studies have adopted more rigor at explaining the mechanisms behind how CSR affects CFP, such as lower cash flow risk (Nguyen et al., 2017), increased agency costs (Kruger, 2017), and increased media attention (Byun and Oh, 2018).

Underlying all the above channels of CSR is a subtle undertone of stakeholder theory. Stakeholders who are the beneficiaries of corporate good could, in turn, reciprocate by providing, and upholding positive relationships with the firm. Barnea and Rubin (2007) go so far as to suggest that stakeholder perception is what potentially drives a U-shaped relationship between CSR and CFP, whereby there exists some threshold value at which point stakeholders believe the firm is doing social good for the right reasons, rather than pernicious reasons such as greenwashing. Since it is the perception of stakeholders that impacts the underlying relationship between CSR and CFP, I forgo conclusions as to whether CSR is indeed a worthy pursuit for firms and if more firms should adopt such causes. Instead, I ask under what conditions does being more socially responsible lead to improved firm profitability. I hypothesise that, if the benefits and costs associated with CSR are based on institutional factors (Campbell, 2007), then the effects CSR has on firm profitability should differ across different countries/regions due to the differences in said institutional factors. The theory of social responsibility is built on a system of ethics, in which decisions and actions must be ethically validated before proceeding. If the action or decision causes harm to society or to the environment, then it would be considered socially irresponsible. Moral values that are inherent in society create a distinction between right and wrong. Moral relativity theory would thus

suggest that what one society deems right and thus socially responsible may not be viewed with the same approval as another society that perhaps emphasises other issues and values.

For example, consider a society where, due to religious beliefs, gambling is morally unacceptable or a society that has widespread poverty and famine. In such a society, it is hard to argue that wildlife conservation and issues of deforestation take priority over the social well-being of local communities. This might be an extreme case, and there are other, more ill-defined areas of right and wrong. For example, stem cell research, on the one hand, could lead to an improvement in the quality of life and treatment of diseases' on the other hand, it could be construed as tampering with life. In this context, alongside moral relativity, it is therefore possible for a firm to engage in responsible practices and receive praise while simultaneously receiving widespread social backlash. Consistent with this view, if a firm engages in CSR, then the effects of CSR on CFP can differ across countries/regions.

Advocates of CSR claim linkages between CSR and CFP through various stakeholders' perceptions of CSR. For instance, an employee who views the firm as being more socially responsible can be more motivated to perform their duties and thus be more productive; a customer could be more inclined to pay more for a product if it is deemed environmentally friendly or contributes to the community; governments could provide incentives for firms with more environmentally sustainable practices. Ultimately, the theory of social responsibility is built on a system of ethics, in which decisions and actions are validated by stakeholders. If an action or decision is deemed by a society to be irresponsible, then consumers can boycott a product, employees can go on strike and reduce productivity, and regulators can impose punitive actions on the firm. Ultimately, it is stakeholders' perceptions of the deed that drive the relationship between CSR and CFP. If we are to take moral relativity at face value then, moral values that are inherent in society create a distinction between right and wrong. Moral relativity theory thus suggests that what one society deems to be right and thus socially

responsible may not be viewed with the same approval as another society that perhaps emphasises other issues and values instead.

4.2.2 Corporate Social Behaviour throughout the World

In this section, I review studies that provide and find evidence for explanations as to why firms in one country/region are potentially more or less socially responsible than other firms in another. While there are studies on the relationship between CSR and CFP, most are limited to a single country, typically the United States, while others are limited in terms of the number of countries in the sample. For example, Matten and Moon (2008) examine the CSR–CFP relationship across three countries, and CFP is examined across countries/regions (Matten and Moon, 2008; Liang and Renneboog, 2017; Dyck et al., 2019). Porter and Kramer (2006) argue that organisations can only do business with tacit or explicit permission from governments and the communities in which they operate. Campbell (2007) further contends that a firm's social behaviour can be explained by *institutional theory*, that is, where firms adopt and abide by the norms, values, principles, and regulations publicly and privately imposed by governments and industry counterparts. While Campbell does make several propositions justifying the institutional effects of why some firms exhibit more socially responsible behaviour than others, the author does not extend the discussion to any institutional effects on the CSR–CFP relationship itself. This study extends Campbell's work by arguing that institutional effects, such as social norms and regulations, not only can influence a firm's social behaviour, but also has implications on the financial proposition behind CSR, that is, the CSR–CFP relation.

Take, for example, a firm that engages in socially responsible activities. These activities can improve firm profitability through customer loyalty (Servaes and Tamayo, 2013) or improve firm productivity through improved employee motivation (Edmans, 2011). The

current study contends that any observable financial benefit from CSR will manifest only if the CSR activity itself aligns with the values and beliefs of the stakeholders, namely, the customers, government regulators, employees, and general community of the firm. A misalignment of CSR initiatives with stakeholder values could negate any benefits CSR might have on CFP and even cause a negative effect. Consider, for example, the case of Australian supermarket chains banning single-use plastic across all their stores. Such actions would be considered by many as an environmentally responsible initiative and interpreted as the firms' engagement in CSR activities. The action, however, drew much criticism from customers and the community, and the executives of various retail outlets attributed their lower quarterly financial performance directly to the backlash to phasing out single-use plastics.[12] In contrast, the same initiatives implemented in the United States and Europe were better received by their communities and customers. These anecdotal examples lead me to the following hypothesis on social culture.

H1: Social culture influences the effect of CSR on CFP.

Since social culture can be multifaceted, to better understand the linkages between social culture and the CSR–CFP relation, I further develop the following hypotheses, based on Hofstede's (2011) cultural dimensions. Hofstede (2011) defines social culture along four key dimensions, as follows: power distance (PDI), individualism versus collectivism (IDV), masculinity versus femininity (MAS), and uncertainty avoidance (UAV).[13]

Hofstede (2011) associates a high IDV score with societies that have a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families. In contrast, Hofstede refers to low IDV scores as *collectivism*,

[12] See https://www.telegraph.co.uk/news/2018/08/01/top-australian-supermarket-backs-plastic-bag-ban-critics-blame.

[13] Hofstede later increased the cultural dimension to six factors however, the additional two factors have not been included in this analysis as they reduce the country/region cross section and limited the sample size of the analysis.

where individuals in a society are more likely to think of the collective as a whole. Collectivists have been empirically shown to believe more strongly in the importance of ethics and social responsibility (Vitell, Paolillo, and Thomas, 2003). In contrast, individualists tend to place less value on CSR. Employees in individualistic organisations are less ethical than their counterparts in collectivistic organisations (Akaah, 1992). While individualists could focus on their self-importance, collectivists are likely to be more sensitive to the interests of others. Given the characteristics of individualism identified from previous findings, the following hypothesis is defined.

H2A: A higher level of individualism has a negative impact on the relationship between CSR and firm performance.

Hofstede (2011) defines the power distance index (PDI) as the extent to which less powerful members of institutions and organisations within a society expect and accept that power is distributed unequally, as endorsed not only by followers but also by leaders. Societies that are considered to have a high power distance index (e.g. Malaysia) tend to accept this inequality as natural and believe that superiors are entitled to such privilege. Societies that have a low power distance index (e.g. Australia and New Zealand) are less likely to tolerate such inequality, and employees are more likely to disagree with superiors. Research has found that people from countries that score high in the power distance index are more likely to accept questionable business practices (Cohen, Pant, and Sharp, 1996). Given the characteristics of power distance identified from previous studies, I would expect companies in societies that are high in the PDI scale to have a lower marginal benefit of CSR on CFP, since consumers and governments within these societies would be less likely to question unethical behaviour and accept it as the norm. I therefore state the following hypothesis.

H2B: A higher degree of power distance within a society has a negative impact on the relationship between CSR and firm performance.

Masculinity, as defined by Hofstede (2011), is a performance-oriented characteristic of individuals who seek achievement, assertiveness, heroism, material success, ambition, and competitiveness, and it is driven mainly by achievement and recognition. Individuals from such societies strive for advancement at the expense of others and superior performance at any cost (Vitell et al., 2003). These individuals can therefore sacrifice formal ethical codes to achieve their objectives (Vitell et al., 2003). Individuals from more masculine societies are more likely to tolerate the questionable behaviours of others (Cohen et al., 1992). In contrast, femininity, as indicated by a low masculinity score, is associated with humility, nurturing, a social orientation, attention to the needs of others, and the pursuit of quality of life (Hofstede, 2001). Given these characteristics, I conjecture that societies with greater masculinity would be more concerned with self-interest and thus less supportive of CSR initiatives. Consequently, stakeholders in such societies will be less supportive of firm CSR activities, reducing their marginal financial benefits. I state this hypothesis formally as follows.

H2C: A higher degree of masculinity has a negative impact on the relationship between CSR and firm performance.

According to Hofstede (2011), uncertainty avoidance (UAV) involves the way that a society deals with the fact that the future can never be known and represents the extent to which the members of a culture feel threatened by ambiguous or unknown situations. Societies high in uncertainty avoidance (e.g. Japan) prefer a structured environment, with a clear hierarchy, strict laws, rules to minimise uncertainty, and do not easily trust other people (Hofstede, 2001). Societies that rate low in uncertainty avoidance (e.g. U.S.) tend to be more tolerant of different opinions, try to have as few rules as possible, and tend to believe that most people can be trusted

(Hofstede 2001). Given that trust is the propensity to take risks in a relationship, Schoorman, Mayer, and Davis (2007) found that people with high uncertainty avoidance were less likely to trust in for-profit companies than those with low uncertainty avoidance. Combining the characteristics of low uncertainty avoidance in particular surrounding trust behind a firms' CSR intentions, I hypothesise that CSR activities in societies with high UAV would be less favourable and, in turn, lead to lower firm performance than in societies with lower uncertainty avoidance. The research hypothesis surrounding uncertainty avoidance and its influence on the CSR–CFP relation is stated as follows.

> **H2D:** A higher degree of uncertainty avoidance has a negative influence on the relationship between CSR and firm performance.

Aside from social values, Campbell (2007) also contends that the regulatory environment can influence the level of CSR a firm exhibits. For example, Chava (2014) finds evidence that CSR can reduce the cost of penalties imposed by regulators and the cost of litigation by stakeholder groups. Liang and Renneboog (2017) further finds evidence that shows the level of CSR investment differs significantly between firms operating in countries with common law versus civil law origins. Given these prior findings, I hypothesise that government regulation influences the effects of CSR on firm performance, as follows.

H3: Legal origins influence the strength and direction of the effect CSR has on CFP.

One of the issues with measuring the characteristics of the regulatory environment is that such measures are binary and do not allow for the measurement of the environment's relative strengths. Conceivably, a firm operating in a country that faces numerous environmental and social regulations would invest in CSR differently than a firm operating in a country that imposes fewer regulations. To test this conjecture, I obtain the number of climate change regulations implemented within a country/region through the London School of

Economics and Political Science's' Grantham Research Institute on Climate Change and the Environment (GRICC).[14] I assume that a society with more climate change regulations indicates a stricter regulatory environment and therefore imposes greater costs on social irresponsibility, or, put differently, a positive effect for a firm being socially responsible. This leads to the following formally stated hypothesis.

H4: Climate change regulation has a positive effect on the relationship between CSR and firm performance.

Overall, finding evidence in favour of H2 to H4 would provide evidence to support the institutional theory explanation of CSR, as discussed in Campbell (2007). Firms that behave according to social norms and abide by regulations in the environment they operate (i.e. are more socially responsible) are more likely to be rewarded with greater profitability.

4.3. Data and Summary Statistics

In this section, I describe the data collection for the measurements of CSR, CFP, social values, and the regulatory environment.

4.3.1 Measure of Firm CSR

I start with the universe of firms in the Thomson Reuters ASSET4 dataset. The ASSET4 dataset provides ratings on a firm's environmental, social, and governance-related issues. Specifically, the scores provided by ASSET4 evaluate a firm's environmental commitment in three areas (emission reduction, product innovation, and resource reduction) and social commitments in

[14] See http://www.lse.ac.uk/GranthamInstitute.

seven areas (community, diversity and opportunity, employment quality, health and safety, human rights, product responsibility, and training and development). Within each area, ASSET4 analysts identify specific line items (e.g. whether the firm's greenhouse gas emissions/sales are below the industry median in a year), with 148 items in total (see Table A4.4 in Appendix C). Based on these line items, ASSET4 produces an index rating score that rates a firm based on whether it reports a line item (e.g. level of CO2 emissions) and the nominal value relative to other firms.[15] This study uses the ASSET4 index ratings as the measure of the level of firm CSR. Specifically, I use data on a firm's overall CSR performance as measured by ASSET4's overall CSR rating, environmental responsibility performance as measured by ASSET4's environmental rating (ENV), and social responsibility performance as measured by ASSET4's social rating (SOC). Each of the CSR ratings for a firm ranges between 0.0 and 100.0, where ASSET4 considers 0.0 to denote the least environmentally/socially responsible firm and 100.0 the most environmentally/socially responsible firm.

Our sample period ranges from the start of 2004 to the year-end of 2017. Although ASSET4 contains data going back to 2002, because the methodology behind the ASSET4 index ratings changed in 2004, I eliminate any observations before 2004. I eliminate any firms belonging to a country that has fewer than 10 firm observations. My final sample is an unbalanced panel of 6,400 firms between 2004 and 2017 across 49 countries/regions,[16] for a total of 41,716 firm–year observations.

[15] For a more detailed discussion on the construction of the ASSET4 index scores, see https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/esg-scores-methodology.pdf.
[16] This study refers to various national areas as countries/regions, since a number of firms are headquartered in geographical regions that may be politically sensitive if referred to as a country, such as Taiwan and Hong Kong.

Table 4.1 reports the mean index scores for the overall CSR rating (*CSR*), environmental rating (*ENV*), and social responsibility rating (*SOC*), as calculated over the entire sample for a given country.

[PLEASE INSERT TABLE 4.1 HERE]

Table 4.1 illustrates that over one-third (2,444 out of 6,400) of the firms in my sample are U.S. based. I further note that U.S. firms have a below-average rating within my sample: the overall CSR rating for U.S. firms is 47.73, while the overall CSR rating for the entire sample (including the United States) is 50.37. The most environmentally responsible firms, on average, are those headquartered in France (mean *ENV* = 73.87), while firms headquartered in Spain are the most socially responsible (mean *SOC* = 68.14).

In contrast, firms based in Qatar (mean *ENV* = 22.62; mean *SOC* = 26.32) and Saudi Arabia (mean *ENV* = 29.26; mean *SOC* = 26.81) are rated by ASSET4 as the *least* environmentally and socially responsible. To better observe the heterogeneity of firm behaviour cross-nationally, Figure A4.1 shows a heat map of the CSR data reported in Table 4.1.

[PLEASE INSERT FIGURE A4.1 HERE]

Both Table 4.1 and Figure A4.1 show the dispersion of CSR activity at the cross-sectional the country/region level. The variation in CSR activity provides further evidence to support the results of Matten and Moon (2008), who find that firm CSR differs between the United States and European countries.

4.3.2 Measure of Firm CFP

According to Margolis et al. (2009), prior studies examining the relation between CSR and CFP often focus on two broad categories for measuring CFP: *accounting-based measures* of financial returns (e.g. return on assets, return on equity) and *market-based measures* of financial value (e.g. stock returns, Tobin's Q). Both categories have their advantages and disadvantages. For example, market-based measures are more likely to reflect the reputational benefits of CSR and reduced risk perceptions, while accounting measures could be better indicators of gains in efficiency due to increased employee productivity, or increased profitability through improved customer relations (Orlitzky, Schmidt, and Rynes, 2003). Additionally, some financial performance measures can represent short-term performance gains (e.g. stock prices), whereas others can represent more long-term financial viability (e.g. return on equity).

Following Barnett and Salomon (2006), I measure a firm's financial performance (CFP) by using multiple measures of firm profitability. Specifically, I measure CFP using the return on equity (*ROE*), calculated as *net income before extraordinary items* over the average *book value of equity*, and the pretax return on assets (*ROA*), calculated as firm *earnings before interest and tax* over the average *book value of assets*, and I include a market-based measure using Tobin's Q (*TOBQ*), calculated as the *total market value of equity* scaled by the firm's replacement value as measured by the firm's *total book value of assets*. Consistent with prior studies, I winsorise the firm-level data at the first and 99th percentiles to avoid issues with outliers.

4.3.3 Social Values and Culture

In this study, I propose that international variations in CSR and CFP are influenced by social values, as discussed by Campbell (2007) and Cai et al. (2016). To measure and test the effects social values have on the CSR–CFP relationship, I measure social values using a firm's headquartered country/region's culture as measured by Hofstede's (2001) *four cultural dimensions.*[17] The HCD measure is used for culture not only because of its prominent use in the academic literature, but also because Liang and Renneboog (2017) find Hofstede's cultural indices to be orthogonal to levels of firm investment in CSR, thus alleviating concerns of multicollinearity. Table 4.2 summarises Hofstede's cultural dimensions.

[PLEASE INSERT TABLE 4.2 HERE]

Table 4.2 summarises the distribution for Hofstede's cultural dimensions in Columns (4) to (9). Malaysia has the greatest power distance index score (PDI), meaning that has the greatest acceptance of inequality (PDI = 104.0). Japan has the highest masculinity score (MAS = 95.0), while, in contrast, Sweden has the lowest MAS score, only 5.0, making it the country with the lowest degree of masculinity. The United States has the highest individualism score (IDV = 91.0), with Colombia and Indonesia having the greatest degree of collectivism (lowest IDV scores). Portugal and Greece have the highest uncertainty avoidance scores (UAV = 104.0 and UAV = 112.0, respectively), indicating that their cultures have strong, rigid beliefs and behaviours, versus Singapore, which has the lowest UAV score in the sample (UAV score of 8.0).

[17] See https://geerthofstede.com/research-and-vsm/dimension-data-matrix/.

4.3.4 Measuring Regulatory Differences

To examine the influence of regulation on the CSR–CFP relation, I measure the differences in government regulation in two ways. First, I follow Liang and Renneboog (2017) and control for a country's *legal origin* (LO), as defined by Shleifer's online appendix for La Porta et al. (1999).[18] I classify a firm's headquartered country as its base of operations and define the legal origin for the firm as being of *British* legal origins (LO_BR), *French* legal origins (LO_FR), *German* legal origins (LO_GE), *Scandinavian* legal origins (LO_SC), or *socialist* legal origins (LO_SO).

Second, I examine the effects of regulatory pressure on the CSR–CFP relationship. I argue that the more stringent the laws implemented in a country/region surrounding environmental sustainability, the greater the benefit of firms being socially responsible. Firms that are socially irresponsible incur higher fines and litigation costs (Chava, 2014). I proxy for the relative strength of a country/region's regulation by using the number of climate change laws and policies adopted in that country/region as reported by GRICC.[19] The GRICC database collates all climate change laws for a country, that is, laws that have been enacted by a legislature, as well as climate change policies, that is, a government plan or course of action that may or may not lead to the proposal of new laws. Use of the GRICC database can be found in areas of *public and environmental economics* (e.g. Fouquet and Broadberry, 2015; Teh, 2017), *environmental sciences* (Fankhauser and Burton, 2011; Dietz, Bowen, Dixon, and Gradwell, 2016), along with law and policy design articles.

To construct my measure on the number of climate change laws and policies, I first collect all the legislation and policies for a particular country/region and extract the year of

[18] See https://scholar.harvard.edu/shleifer/publications/quality-government.
[19] See http://www.lse.ac.uk/GranthamInstitute.

publication via the GRICC database. I count the cumulative numbers of laws and policies for all prior years for a particular country/region. The final result is the variable $CC\_REG_{k,t}$ measures the total number of climate change laws and policies implemented in country/region k in year t. Column (2) of Table 4.2 shows the distribution of the numbers of climate change laws and policies across countries/regions. These values represent the average (mean) total numbers of climate change laws and policies across all years for each particular country/region. As shown in Column (3), the average number of climate change regulations in a country is 4.17 across the entire sample. On average, the United Kingdom has the greatest number of climate change regulations, with a mean of 11.05 policies and laws enacted between 2004 and 2017. In the sample, the United Arab Emirates has the fewest climate change policies and laws enacted between 2004 and 2017.

4.3.5 Firm Controls

Following Waddock and Graves (1997), I measure and control for firm size using the natural logarithm of *total assets* (book value). Firm size is included as a control variable, because larger firms could have greater resources for social investments, attracting greater pressure to engage in CSR activities, but, at the same time, larger firms could succumb to a diffusion of responsibility.

I include the firm leverage ratio (LEV), calculated as *total* (book value) *assets* scaled by *total* (book value) *liabilities*, to control for firm financial risk. Firm financial risk is an important factor to control for, since stable firms with lower risk are more likely to engage in CSR activities (Brown, and Perry, 1994). Moreover, CSR has been linked to the risk profile of firms (Orlitzky and Benjamin, 2001).

Since some industries can be considered less environmentally and socially responsible than others, such as heavy manufacturing, weapons manufacturing, and gambling, stakeholders

can vary in their degree of scrutiny of the different industries. Following McWilliams and Seigel (2001), I control for differences in industries by using industry fixed effects in the panel models. Global Industry Classification Standard (GICS) codes at the four-digit level are used to identify the main industry group that a firm belongs to and to create the industry-specific dummy variables for each firm. Table 4.3 presents the firm-level descriptive statistics interacted with industry.

[PLEASE INSERT TABLE 4.3 HERE]

Table 4.3 presents the firm variable descriptive statistics interacted with industry.[20] The results show that the largest industry classification is capital goods, making up 9.9% (636 out of 6,400) of the firms in the sample, while the smallest industry classification is household and personal products, making up only 0.8% of the sample. The mean *ROA* (*ROE*) across all industries in the sample is 10.13% (4.86%), with commercial and professional services showing the higher CFP measures across ROA, ROE, and TOBQ. The household and personal products industry has the highest mean CSR rating, while the least socially responsible industries, based on average CSR rating, are the diversified financial and retailing industries.

4.4. Empirical Results

4.4.1 Do the Effects of CSR on CFP Vary across Countries/Regions?

In this section, I examine the effects of CSR on CFP across countries/regions. I start by replicating the results from prior studies with a U.S.-only sample before applying the same models to a non-U.S. sample for comparison.

[20] Descriptive statistics on the full sample can be found in Table A4.1 in Appendix C and the same descriptive statistics broken down by country and year can be found in Table A4.2 and Table A4.3, respectively.

Following Dyck et al. (2019), I classify a firm's country/region as its reported headquarter country/region. For example, I define a firm with headquarters in the United States as a U.S. firm, and non-U.S. firm otherwise. Following Waddock and Graves (1997), I model the CSR–CFP relationship as

$$CFP_{i,t} = \alpha_0 + \beta_1 CSR_{i,t-1} + \alpha_1 CFP_{i,t-1} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \phi_j + \eta_t + e_{i,t} \qquad (4.1)$$

where $CFP_{i,t}$ is the CRP of firm i in year t as measured by either the firms' ROE, ROA, or TOBQ value, as noted in the tables, and $CSR_{i,t-1}$ is the ASSET4 overall CSR rating of firm i in year $t-1$, $CFP_{i,t-1}$ is the one-year-lagged firm financial performance, $SIZE_{i,t}$ is the size of firm i in year t measured as the natural logarithm of *total assets,* and $LEV_{i,t}$ is the degree of financial risk of firm i in year t as measured by the debt ratio. Based on McWilliams and Siegel (2001), I include year fixed effects (η_t) and industry fixed effects (ϕ_j) to control for performance differences over time and across industries, respectively. As mentioned previously, the GICS code at the four-digit level is used as the basis to identify the main industry group that a firm belongs to and to create the industry-specific dummy variables for each firm.

I further disaggregate the CSR measure into environmental responsibility (*ENV*) and social responsibility (*SOC*) to capture the multidimensionality of CSR (Nollet, Filis, and Mitrokostas, 2016) as shown in the following two equation, respectively:

$$CFP_{i,t} = \alpha_0 + \beta_2 ENV_{i,t-1} + \alpha_1 CFP_{i,t-1} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \phi_j + \eta_t + e_{i,t} \qquad (4.2)$$

$$CFP_{i,t} = \alpha_0 + \beta_3 SOC_{i,t-1} + \alpha_1 CFP_{i,t-1} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \phi_j + \eta_t + e_{i,t} \qquad (4.3)$$

I estimate Eqs. (4.1) to (4.3) separately for each country/region, and I present the results in Table 4.4.

[PLEASE INSERT TABLE 4.4 HERE]

For ease of presentation, Table 4.4 reports the estimated coefficient on the CSR (β_1) for each country/region rather than the whole model specification. Column (1) shows the results corresponding to Eq. (4.1), using ASSET4's overall CSR measure (CSR). Columns (2) and (3) show the results corresponding to Eqs. (2) and (3), respectively, and are disaggregations of Eq. (4.1) using ASSET4's environmental responsibility score (*ENV*) and social responsibility score (*SOC*), respectively.

The results show that the effects of CSR on CFP are non-uniform across the country/region cross section and vary across measures of CSR. For example, firms operating in the Netherlands ($\hat{\beta}_1$= 0.114), Russia ($\hat{\beta}_1$= 0.371), the United Kingdom ($\hat{\beta}_1$= 0.218), and the United States ($\hat{\beta}_1$= 0.108) exhibit, on average, a significantly positive CSR–CFP relationship. Interpreting the $\hat{\beta}_1$ coefficient for the U.S. sample would imply that firms in the United States increasing their CSR rating by 1% would lead to an increase in ROE of 0.108%, on average. Meanwhile, firms in Australia ($\hat{\beta}_1$= -0.197), Egypt ($\hat{\beta}_1$= -0.989), and Luxembourg ($\hat{\beta}_1$= -0.299) exhibit a significantly negative CSR–CFP relationship. For example, a firm headquartered in Australia increasing its CSR rating by 1% would be associated with an average decrease in ROE of 0.197%.

To examine the multidimensional nature of CSR, Column (2) of Table 4.4 shows the relative importance placed on environmental responsibility, or lack thereof, in only some countries/regions. Specifically, I find that only firms in Russia ($\hat{\beta}_2$=0.348) exhibit a general increase in ROE when they are more environmentally responsible. In contrast, firms in

Australia ($\hat{\beta}_2$ = -0.135), China ($\hat{\beta}_2$ = -0.045), Egypt ($\hat{\beta}_2$ = -0.534), Germany ($\hat{\beta}_2$ = -0.116), Luxembourg ($\hat{\beta}_2$ = -0.305), and Thailand ($\hat{\beta}_2$ = -0.079) all exhibit lower ROE values when firms increase their environmental responsibility, as indicated by the significantly negative coefficients.

Column (3) of Table 4.4 shows the results when associating social responsibility with firm profitability. I find that firms in Colombia ($\hat{\beta}_3$ = 0.045), Denmark ($\hat{\beta}_3$ = 0.063), Norway ($\hat{\beta}_3$ = 0.183), and the United States ($\hat{\beta}_3$ = 0.088) have an increased CFP with increased SOC, suggesting a positive CSR–CFP relationship when firms invest in social and community-based CSR. Firms in Australia ($\hat{\beta}_3$ = -0.102), Japan ($\hat{\beta}_3$ = -0.028), and Luxembourg ($\hat{\beta}_3$ = -0.208) exhibit a negative effect between CSR and CFP, suggesting that societal and community-based CSR comes at a cost that is greater than any financial benefits.

The results from Table 4.4 for U.S. firms only are consistent with those of Waddock and Graves (1997), in the sense that both their study and this study find a significantly positive relationship between CSR and CFP. I extend the work of Waddock and Graves by demonstrating heterogeneity in the country/region cross section; that is, some countries/regions exhibit a positive CSR–CFP relationship, others a negative CSR–CFP relationship, and others still no significant relationship at all. I note that the results in Table 4.4 provides support for H1, that the effects of CSR on CFP differ across countries/regions, given that some countries/regions exhibit significantly positive CSR–CFP relationships while others exhibit significantly negative CSR–CFP relationships.

4.4.2 Social Culture and the CSR–CFP Relation

In this section, I focus on the role social culture might play in moderating the effects of CSR on CFP. To examine whether a country/region's social culture can explain the variation in effects between CSR and CFP, I adjust Eqs. (4.1) to (4.3) by interacting the various cultural dimensions with CSR, as follows:

$$CFP_{i,t} = \alpha_0 + \gamma_0 CSR_{i,t-1} + \alpha_1 IDV_k + \alpha_2 PDI + \alpha_3 MAS + \alpha_4 UAV + \quad (4.4)$$
$$\gamma_1 CSR_{i,t-1} \times IDV_k + \gamma_2 CSR_{i,t-1} \times PDI_k + \gamma_3 CSR_{i,t-1} \times MAS_k +$$
$$\gamma_4 CSR_{i,t-1} \times UAV_k + X_{i,t-1} + \phi_j + \eta_t + \lambda_k + e_{i,t}$$

where, for country/region k, IDV_k is Hofstede's *individualism versus collectivism* cultural measure, MAS_k is Hofstede's *masculinity versus femininity* cultural measure, PDI_k is Hofstede's *power distance* cultural measure, and UAV_k is Hofstede's *uncertainty avoidance* cultural measure. I control for firm characteristics ($X_{i,t-1}$) such as size and leverage, year fixed effects (η_t), industry fixed effects (ϕ_j), and country/region economic conditions (λ_k) such as the gross domestic product (GDP) per capita and the GDP per capita growth. I present the estimation results of Eq. (4.4) in Table 4.5.

[PLEASE INSERT TABLE 4.5 HERE]

Columns (1), (3), and (5) in Table 4.5 represent my baseline model with no interaction terms, while Columns (2), (4), and (6) are estimations of Eq. (4.4) using *ROE*, *ROA*, and *TOBQ*, respectively. The results in Column (2), (4), and (6) shows that CSR interacted with *IDV* exhibits a significantly negative coefficient, indicating that the marginal effect of CSR on CFP is diminished as the level of *IDV* increases. This result is significant at the 1% level and

provides direct support for H2A across all three measures of CFP. However, the results show that the coefficient on $CSR \times PDI$ has no statistical significance; thus, I fail to find evidence in support of H2B. This result suggests that cultures with high power distance have no moderating effect on the CSR–CFP relationship.

Contrary to the original hypothesis and expectations, I find a positive relationship between CSR and CFP when moderated by MAS. This result suggests that the effects of CSR on CFP are positive and are greater in societies associated with higher levels of masculinity, compared to societies with higher levels of femininity. Additionally, the UAV score is significantly negative across the three measures of CFP, albeit, at differing levels of significance. The negative coefficient on $CSR \times UAV$ indicates that the marginal effect of CSR on CFP is diminished as the level of UAV increases, providing support for H2D, country/regions with greater uncertainty avoidance, and therefore less trust of firms (Schoorman et al., 2007), are associated with lower CFP.

To test whether the cultural dimensions have a moderating effect on the CSR–CFP relationship in H2, I conduct a test of joint significance similar to that of Breuer et al. (2018). I construct the test for H2 as a joint test of significance under the null hypothesis $H_0: \gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = 0$, and it corresponds to HCD having *no* moderating effect on the CSR–CFP relationship. I calculate the corresponding *F*-statistics and present them at the bottom of Table 4.5. Overall, Columns (2), (4), and (6) are tested against the baseline model counterparts (i.e. Columns (1), (3), and (5)), the results indicate that the interaction between CSR and all four cultural dimensions exhibit a significant joint effect on CFP. This result provides evidence in support of H2; social culture moderates the effects of CSR on CFP.

4.4.3 Legal Origin and the CSR–CFP Relation

In this section, I investigate whether regulatory differences across countries/regions can help explain the variations in CSR–CFP relations between countries/regions. Following Liang and Renneboog (2017), the analysis uses legal origins to explain heterogeneity in the CSR–CFP relation across countries/regions. To test and measure whether legal origin can help explain differences in the CSR–CFP relationship, I interact a country/region's legal origin with CSR. The panel model specification is specified in the following equation:

$$CFP_{i,t} = \alpha_0 + \omega_0 CSR_{i,t-1} + \alpha_1 LOFR_k + \alpha_2 LOGE_k + \alpha_3 LOSC_k + \alpha_4 LOSO_k + \quad (4.5)$$

$$\omega_1 CSR_{i,t-1} \times LO\_FR_k + \omega_2 CSR_{i,t-1} \times LO\_GE_k + \omega_3 CSR_{i,t-1} \times LO\_SC_k +$$

$$\omega_4 LO\_SO_k + X_{i,t-1} + \phi_j + \eta_t + \lambda_k + e_{i,t}$$

Table 4.6 presents the results from estimating this equation using either ROE, ROA, or TOBQ in Columns (2), (4), and (6) respectively. Columns (1), (3), and (5) show the results for the baseline models, which I present as part of the test on the moderation effect.

[PLEASE INSERT TABLE 4.6 HERE]

Column (2) of Table 4.6 shows that, of the various legal origin definitions, firms belonging to a country with French legal origins ($\omega_1 = -0.054$), Germanic legal origins (ω_2= -0.039), or Scandinavian legal origins (ω_3= -0.084) lead to greater marginal costs/lower marginal benefits on CSR investments when compared to firms operating in countries with British legal origins (ω_0= -0.030). These results are only significant only when using ROE as the measure for CFP, and nonsignificant for both TOBQ and ROA. Testing the joint significance of the legal origin interacted with CSR shows that legal origins interacted with CSR have a joint significant effect on ROE (1% significance) and a marginally significant

effect on ROA (10% significance). Overall, the results on interacting legal origins with CSR provides some evidence supporting H3: the regulatory environment in which a firm is headquartered influences the effect that CSR has on CFP, especially when it comes to ROE.

4.4.4 Climate Change Regulation and the CSR–CFP Relation

The previous section finds that legal origins offer *some* explanatory power in determining the cross-country/region variation in the CSR–CFP relation. However, the results are inconsistent across the various measures of CFP. This could be due to the coarse nature of the measurement of the regulatory environment using legal origins. Chava (2014) argues that one of the primary motivations and, thus, channels for CSR to influence CFP is the avoidance of conflicts with government regulators and litigation by stakeholders. Given Chava's findings, I explore this regulatory aspect further by examining the degree of regulatory *strength* surrounding environmental and social responsibility, which I proxy for by using the total number of laws and policies surrounding *climate change* ($CC\_REG_{i,t-1}$).

To test the effects of climate change, I adjust the baseline model, Eq. (4.1), by interacting $CSR_{i,t-1}$ with the total number of climate change regulations in country/region k at time $t-1$ ($CC\_REG_{k,t-1}$). I use the one-year-prior CC_REG, since legislation and policies, once adopted, can have a *grace* period before being formally adopted by the market. I specify the following model:

$$CFP_{i,t} = \alpha_0 + \delta_0 CSR_{i,t-1} + \delta_1 CC\_REG_{k,t-1} + \delta_2 CSR_{i,t-1} \times CC\_REG_{k,t-1} + \quad (4.6)$$

$$+ X_{i,t-1} + \phi_j + \eta_t + \lambda_k + e_{i,t}$$

I expect δ_2 to be *positive,* based on H4, since this would indicate that regulation increases the marginal costs of being socially *irresponsible,* which, in turn, should indicate the marginal benefits of being socially *responsible.* Hypothesis 4 is therefore supported if the coefficient on the interaction between CSR and CC_REG is significant ($H_0: \delta_2 \geq 0$).

[PLEASE INSERT TABLE 4.7 HERE]

Table 4.7 presents the estimation results of Eq. (4.6) using *ROE*, *ROA*, and *TOBQ* as the dependent variables. The results across Columns (1), (3), and (5) show δ_1 is statistically positive, suggesting that firms operating in countries with greater climate change regulation tend to have higher CFP. When examining the direct moderating role of *CC_REG* on the CSR–CFP relation, I find that, while the sign of δ_2 is positive across all three measures of CFP, the coefficient is only statistically significant in Column (4). I thus find only partial evidence in support of H4. I find *some* evidence that the effects of CSR on CFP are greater when there is a stronger disincentive for firms to act irresponsibly, that is, the benefits of being environmentally responsible outweigh the costs of being environmentally irresponsible.

4.5. Conclusions

Sizeable academic and professional interest has been shown in the effects of firm CSR and firm profitability (CFP). To the best of my knowledge, at the time of this writing, little evidence exists in the finance literature regarding the CSR–CFP relationship on an international basis. This chapter contributes to the literature by investigating the CSR-CFP relationship using data across 6,400 firms in 49 different countries.

Further differentiating this chapter from prior studies, I did not examine the cross-national differences in the *level* of CSR but, instead, the cross-national differences in the *effects*

of CSR on CFP. I find that the CSR–CFP relationship differs, depending on the country/region being examined. Specifically, I find evidence that firms headquartered in Colombia, Denmark, Russia, the United Kingdom, and the United States are, on average, more likely to exhibit significant positive CSR–CFP relationships. My results for the United States are qualitatively similar to those of Waddock and Graves (1997) and McWilliams and Seigel (2000). I also find that firms headquartered in Australia, China, Egypt, Germany, Luxembourg, and Thailand are more likely to exhibit significant negative CSR–CFP relationships. Overall, my results provide evidence that the marginal benefits and costs of CSR differ across countries/regions. For example, a firm operating in the United States would, on average, see an *increase* of about 1.08% in ROE values for every 1% increase in the overall CSR rating, in contrast to a firm in Australia, which would, on average see a *decrease* of 1.97% for the same increase in the overall CSR rating. These results demonstrate that the marginal benefits and costs of being socially responsible differ significantly between countries/regions.

Following Cai et al. (2016), I examined the cross-country/cross-region variation in the CSR–CFP relation by examining institutional factors such as social culture and regulation. Different from Cai et al., I use Hofstede's cultural dimensions as my measure for social culture, interacting each cultural dimension with my measure of CSR in a panel OLS regression with CFP as the dependent variable. I find that, while social culture had an overall joint moderating effect on the CSR–CFP relationship, a society's degree of *power distance* does not exhibit any significant effects. The degrees of individualism and uncertainty avoidance (masculinity) have an overall negative (positive) moderating effect on CSR–CFP relation; that is, the marginal benefit of CSR on CFP diminishes in societies with high individualism or uncertainty avoidance and increases in countries with high masculinity.

I also examine whether regulatory factors can help further explain the cross-country/region variation in the CSR–CFP relation. My results show some evidence that legal

origin and the amount of climate change regulation only partially explain some of the CSR–CFP relation variations; however, the results appear to be conditional on the measure of CFP selected. For example, I find that the effect of an additional climate change law/policy increases the marginal benefit of CSR on *ROA* values by 0.006%. I do not find any significance across ROE or TOBQ values, however, and, unlike the ROA value, which measures a firm's overall profitability per unit of asset, TOBQ and ROE are both market- based measures of returns. The discrepancy between ROA with TOBQ and ROE suggests that market participants are already pricing regulatory changes into the valuation of firms as legislation is passed.

Overall, my study has implications for both financial managers making strategic decisions surrounding a firm's social responsibility and government regulators. Firms that want to become more socially responsible should do so by taking into account the social values and norms of their stakeholders, such as consumers, investors, and employees. Government regulators should consider that climate change policy and legislation not only impact environmental and social aspects, but also have ramifications for firm profitability.

CHAPTER 5: CONCLUSIONS

Many studies examine the cost of socially responsible behaviour, from various perspectives. Some studies examine socially responsible behaviour from the perspective of the investor, while others do so from the perspective of the firm. Even given the literature in the area of socially responsible behaviour, the question of whether it pays to do social good from a financial perspective is still widely debated. In this thesis, I add to the growing literature by examining the implications of firm social responsibility from the perspective of 1) returns to investors in socially responsible mutual funds versus conventional mutual funds in Chapter 2, 2) returns to shareholders versus bondholders in Chapter 3, and 3) returns to firms globally in Chapter 4. The discussion below highlights my findings, followed by my conclusions.

In Chapter 2, I investigated socially responsible investing (SRI) mutual funds and contrasted them against their conventional mutual fund counterparts while controlling for managerial skill, as measured by fund managers' ability to time market volatility. I find that, prior to controlling for managerial skill, SRI funds exhibit no significant under- or overperformance when compared to conventional fund counterparts, even with the higher managerial fees for SRI funds. I further investigated whether this result is driven by SRI funds potentially attracting more talented managers in terms of their ability to time the markets. While SRI funds tend not to time the volatility of markets as much as their conventional fund counterparts, those that do outperform their conventional counterparts. This result potentially sheds light on why SRI funds, as a whole, tend to exhibit no significant underperformance, contrary to traditional finance models.

In Chapter 3, I investigated issues of corporate social responsibility (CSR) from the perspective of shareholder and bondholder wealth. Specifically, I examined whether CSR events surrounding a firm lead to increases in shareholder and bondholder wealth. While the

issue has been largely examined from a shareholder perspective, with a few studies examining bondholder wealth, few studies have incorporated both into an analysis and, further, none have explored the potential for wealth transfer from shareholders to bondholders. The results of my analysis indicate that shareholder wealth is diminished surrounding firm CSR activities, whether positive or negative; however, bondholder wealth increases, given positive environmental events. Having documented the inverse relationship, I then examined whether there were any wealth transfers from shareholders to bondholders. My results show evidence to support the wealth transfer hypothesis given environmental activities. This finding indicates that firm managers need to be cautious about investing too heavily in socially responsible activities, since, although they may benefit bondholders and potentially society at large, they come at the cost of shareholder wealth.

In Chapter 4, I examined the relationship between CSR and firm performance across an international sample of firms. Given that the literature in this area has focused on the United States, any influence that institutional factors such as social values or regulation has on the effect of CSR on firm performance would be omitted from a single-country study. If a firm can indeed do well financially by doing social good, this should apply uniformly across a global sample. However, I find that the exact nature of what is deemed to be social good is relative to the institutional norms a firm faces, such as social values and the regulatory environment.

Overall, across my three essays on socially responsible behaviour, I find the issue of social responsibility to be multifaceted. While social responsibility has the potential to benefit society, this benefit depends on the exact nature of the activity itself and whether such activities align with the interests of various stakeholders. Even on this point, the financial return is found to vary between different stakeholders such as differences between shareholders and bondholders. From a policy perspective, while socially responsible behaviour may have positive outcomes whether that be through greater community and environmental well-being,

the impact of such initiatives on key stakeholders such as shareholders and bondholders need to be carefully considered when designing such schemes. Ultimately, I conclude by suggesting that managers who implement and invest in socially responsible initiatives should do so by considering the environment in which they operate, as well as the implications on such initiatives across a multitude of stakeholders.

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TABLES

Table 2.1: Summary Statistics on SRI versus Matched Conventional Funds

Sampling Period	Return	Std. Deviation	Sharpe Ratio	# of Funds
1990:01–1997:12				
SRI	15.438	13.607	1.135	64
Conventional	16.503	12.668	1.303	192
FF Market Index	14.156	11.936	1.186	-
1998:01–2005:12				
SRI	5.016	18.736	0.268	170
Conventional	5.731	17.815	0.322	510
FF Market Index	6.545	16.814	0.389	-
2006:01–2013:12				
SRI	8.13	17.839	0.456	200
Conventional	8.18	17.756	0.461	600
FF Market Index	8.99	16.327	0.551	-
Full Sample				
SRI	7.513	17.914	0.419	234
Conventional	7.903	17.445	0.453	702
FF Market Index	10.495	15.288	0.687	-

This table reports summary statistics on all SRI funds and a matched sample of conventional funds. The matching conventional funds that make up the conventional fund portfolio were selected using fund investment styles by Lipper classification, fund age, and fund size. SRI and conventional fund returns are calculated based on an equally weighted portfolio of all funds. The return data are annualised with reinvestment of all distributions. All returns are net of expenses. Besides fund returns, the summary statistics on the Fama–French market index benchmark are presented. Expense ratios are presented as a percentage of the assets invested.

Table 2.2: Results from the Volatility Timing Model

	# of SRI Funds	% of SRI Funds	# of Conventional Funds	% of Conventional Funds
Significantly +	21	8.97	21	9.32
Significantly -	24	10.26	22	9.75
Not Significantly +	111	47.44	83	35.17
Not Significantly -	78	33.33	108	45.76
Total	234	100	234	100

This table reports the number of funds that have significant volatility timing coefficients during the full sample period (1 January 1990 to 31 December 2013). Using the standard volatility timing regression of Busse (1999) and as specified in Eq. (2.2), significantly +/- indicates the number of funds that have δ coefficients that are significantly positive/negative. Not significantly +/- indicates the number of funds that exhibit a positive/negative δ but which is not significantly different from zero, which means no volatility timing. Sample funds have data for at least 24 monthly returns. Conventional funds here denote those of the matched conventional fund portfolio. To determine the significance of the timing coefficients in Eq. (2.2), the 95% significance level is adopted, using Newey–West adjusted *t*-values.

Table 2.3: Results of the Volatility Timing Model, by Lipper Classification Codes

	Significantly -	Significantly +	Not Significantly -	Not Significantly +
Panel A: SRI funds				
EIEI	1	0	6	5
LCCE	5	15	23	31
LCGE	4	5	15	8
LCVE	4	0	6	0
MCCE	0	1	9	10
MCGE	1	0	2	0
MLCE	3	0	27	8
MLGE	0	0	3	3
MLVE	0	0	3	0
SCCE	3	0	11	11
SCGE	3	0	5	0
SCVE	0	0	1	0
SESE	0	0	0	1
TK	0	0	0	1
Total	24	21	111	78
Panel B: Matched conventional funds				
EIEI	0	1	3	8
LCCE	6	4	26	38
LCGE	2	5	12	13
LCVE	2	0	3	5
MCCE	2	3	8	7
MCGE	0	0	1	2
MLCE	6	2	15	15
MLGE	2	0	1	3
MLVE	0	0	0	3
SCCE	1	3	10	11
SCGE	0	3	2	3
SCVE	0	0	1	0
SESE	1	0	0	0
TK	0	0	1	0
Total	22	21	83	108

This table reports the number of funds that have significant volatility timing coefficients during the full sample period (1 January 1990 to 31 December 2013). Panel A presents the results of the volatility timing regression of Busse (1999) and as specified in Eq. (2.2) for SRI funds. Panel B presents the results of the volatility timing regression for matched conventional funds. Significantly +/- indicates the number of funds that have δ coefficients which are significantly positive/negative. Not significantly +/- indicates the number of funds that exhibit a positive/negative but nonsignificant δ. The funds are categorised into their Lipper classes as defined in Table A2.2 in Appendix A. Sample funds must have at least three years' worth of monthly return data. To determine the significance of the timing coefficients in Eq. (2.2), the 95% significance level is adopted, using Newey–West adjusted *t*-values.

Table 2.4: Fund Performance

Panel A: Annualised returns for SRI and conventional funds			
Estimate	SRI	Conventional	SRI - Conventional
Average Return	7.517	7.905	-0.3881
CAPM Alpha	-0.0136**	-0.0073	-0.0379***
	[-2.3885]	[-1.2764]	[-7.564]
FF3 Alpha	-0.015***	-0.0111**	-0.0358***
	[-3.1447]	[-2.3208]	[-8.0324]
FF4C Alpha	-0.0139***	-0.0103*	-0.0349***
	[-2.6103]	[-1.9577]	[-7.9192]

Panel B: Annualised returns for SRI and conventional funds in non-crisis and crisis periods						
	SRI		Conventional		SRI - Conventional	
Estimate	*Non-Crisis*	*Crisis*	*Non-Crisis*	*Crisis*	*Non-Crisis*	*Crisis*
Average Return	17.543	-24.531	17.896	-24.029	-0.353	-0.501
CAPM Alpha	-0.0164***	0.0206	-0.0106*	0.0211	-0.0352***	-0.0052
	[1.5883]	[-2.3507]	[-1.67]	[1.5055]	[-6.0397]	[-0.4394]
FF3 Alpha	-0.0181***	0.0202	-0.0141***	0.0177	-0.0336***	-0.0024
	[-3.4316]	[1.3226]	[-2.9]	[1.2498]	[-6.0668]	[-0.2349]
FF4C Alpha	-0.0169***	0.0203	-0.0133***	0.0178	-0.0326***	-0.0022
	[-3.0785]	[1.3224]	[-2.6058]	[1.2507]	[-5.9729]	[-0.2242]

This table presents the statistics on SRI fund performance versus those for a matched conventional fund portfolio. The performance measures use the monthly time series of an equally weighted portfolio of funds (SRI or conventional or SRI minus conventional) from 1990 to 2013. SRI funds refer to U.S. domestic equity funds with social responsibility screens. Conventional funds refer to non-SRI U.S. equity funds that are matched to SRI funds by investment objective, age, and fund size (i.e. total net assets). For every SRI fund in the sample, I locate a sample of three matched conventional funds for comparison. The performance measures (alphas) are annualised for presentation. Panel A presents the performance measures for the entire period, whereas Panel B presents the measures for the non-crisis and crisis periods, respectively. The CAPM alpha is calculated using the CAPM. The FF3 alpha is based on the FF3 model. The FF4C alpha is calculated using the FF4C model extension. During the period between 1990 and 2013, I identify three crisis periods for the stock market, based on the peaks and troughs of the S&P 500 index. The remaining months are classified as non-crisis periods. Standard errors are corrected for autocorrelation using the Newey–West (1987) procedure. The *t*-statistics are presented in parentheses. *, **, and *** indicate the p-values for significance at the 10%, 5%, and 1% levels, respectively.

Table 2.5: Performance Measures Accounting for Volatility Timing

	Crisis	Non-Crisis	Full Sample
Panel A: Sharpe ratio			
SRI^{+}	-38.73%	32.40%	12.55%
$CONV^{+}$	-41.05%	31.25%	11.36%
SRI^{-}	-40.90%	28.05%	9.44%
$CONV^{-}$	-37.94%	31.12%	12.04%
$SRI^{No-Timing}$	-39.18%	29.45%	10.56%
$CONV^{No-Timing}$	-38.54%	32.13%	12.81%
Panel B: VaR measure			
SRI^{+}	-11.48%	-7.25%	-8.61%
$CONV^{+}$	-11.28%	-7.23%	-8.55%
SRI^{-}	-10.81%	-7.03%	-8.24%
$CONV^{-}$	-11.42%	-7.28%	-8.59%
$SRI^{No-Timing}$	-11.67%	-7.44%	-8.78%
$CONV^{No-Timing}$	-11.37%	-7.38%	-8.66%

This table presents the statistics on SRI fund performance versus that of a matched conventional fund portfolio. The portfolios are disaggregated into either procyclical volatility timing, countercyclical volatility timing, or non–volatility timing funds. SRI funds refer to U.S. domestic equity funds with social responsibility screens. Conventional funds refer to non-SRI U.S. equity funds that are matched to SRI funds by investment objective, age, fund size (i.e. total net assets), and volatility timing characteristics. For each SRI fund in the sample, I locate a sample of three matched conventional funds for comparison. Panel A reports the mean Sharpe ratios, while Panel B reports the mean VaR measure as averaged across the respective portfolio. All figures are annualised for presentation purposes. Between 1990 and 2013, I identify three crisis periods for the stock market, based on the peaks and troughs of the S&P 500 index. The remaining months are classified as non-crisis periods.

Table 3.1: Firm-Level Descriptive Statistics

	Mean	SD	Min	Median	Max	N
Environmental Rating (ENV)	58.35	30.18	8.30	65.94	97.28	2503
Social Rating (SOC)	60.12	27.07	3.64	64.77	98.88	2515
Revenue ($ million)	17.18	24.43	2.23	8.89	236.54	3013
Leverage (LEV)	0.67	0.27	0.15	0.64	7.82	3013
Size ($Size$)	9.17	1.24	3.71	9.17	13.38	3013
Cash	1,679.3	4,629.8	0.12	527.9	71,730	3013

This table presents the descriptive statistics on firm characteristics. The environmental score and social score are based on the data collected from ASSET4. *Leverage* is calculated as total liabilities scaled by total assets, *Size* is measured as the natural logarithm of market capitalisation, and cash is measured as total cash holdings. The statistics are based on an unbalanced panel of 305 firms between 2002 and 2015.

Table 3.2: Distribution of Events

	All Events		Positive Events		Negative Events	
	No.	%	No.	%	No.	%
Panel A: Events by environmental/social dimensions						
Environmental	1037	33.36	682	22.12	355	11.51
Social	2046	66.36	1013	33.51	1016	32.95
Panel B: Events by Factiva classifications						
Emissions & Resources	527	17.09	272	8.82	255	8.27
Product	440	14.27	181	5.87	259	8.40
Community	642	20.82	546	17.71	96	3.11
Employment Quality	809	26.24	226	7.33	583	18.91
Health and Safety	372	12.07	121	3.92	251	8.14
Rights & Diversity	207	6.71	110	3.57	97	3.15
Recognition & Awards	338	10.96	338	10.96	-	-
Disasters & Accidents	126	4.09	-	-	126	4.09
Overall Events	**2,928**	**100**	**1658**	**56.63**	**1270**	**43.37**

This table presents the distribution of events classified by their categories. Panel B shows the events as classified by Factiva. Factiva defines environmental events as events about environmental recognition and awards, emissions and resource reduction/usage, and environmental disasters and accidents. The Factiva database defines social events as the aggregation of events about social recognition and awards, product, community, employment quality, health and safety, rights and diversity, and other social concerns. All percentages are calculated as a proportion of total events. Note that a number of events fall under multiple categories according to Factiva's database; hence the figures in the table sum to more than 100%.

Table 3.3: Shareholder Abnormal Returns (Market Model)

Window	Mean (%)	t-Statistic	Min (%)	Med (%)	Max (%)	N
Panel A: All events						
CAR[-1, +1]	-0.1558***	-2.6322	-47.20	-0.10	23.13	2732
CAR[-5, +5]	-0.2050**	-1.9834	-40.95	-0.12	39.94	2732
Panel B: All positive events						
CAR[-1, +1]	-0.1010*	-1.6555	-16.44	-0.07	13.45	1549
CAR[-5, +5]	-0.2398**	-1.9788	-40.95	-0.12	22.97	1549
Panel C: All negative events						
CAR[-1, +1]	-0.2277**	-2.0526	-47.20	-0.13	23.13	1183
CAR[-5, +5]	-0.1595	-0.8939	-34.21	-0.11	39.94	1183
Panel D: Positive environmental events						
CAR[-1, +1]	-0.1732*	-1.7666	-16.44	-0.04	13.45	633
CAR[-5, +5]	-0.2196	-1.2627	-19.07	-0.12	22.05	633
Panel E: Positive social events						
CAR[-1, +1]	-0.2077***	-2.6813	-13.30	-0.06	13.45	968
CAR[-5, +5]	-0.1942	-1.1933	-40.95	-0.11	22.97	968
Panel F: Negative environmental events						
CAR[-1, +1]	-0.1480	-0.8936	-26.65	-0.11	13.23	334
CAR[-5, +5]	-0.2133	-0.7624	-22.92	-0.27	20.81	334
Panel G: Negative social events						
CAR[-1, +1]	-0.1270	-0.9897	-47.20	-0.13	23.13	943
CAR[-5, +5]	-0.2210	-1.0679	-34.21	-0.12	39.94	943

This table reports the cumulative abnormal stock returns as calculated using the market CAPM. The three-day [-1, +1] and 11-day [-5, 5] CAR statistics are reported. The test portfolio in Panel A covers all events, that in Panel B covers all events identified as *positive*, that in Panel C covers all events identified as *negative*, that in Panel D covers events classified as both *positive* and *environmental*, that in Panel E covers events classified as both *positive* and *social*, that in Panel F covers events classified as both *negative* and *environmental*, and the portfolio in Panel G covers events classified as both *negative* and *social*. The reported test statistics and significance levels are calculated following Patell (1976). ***, **, and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 3.4: Shareholder Abnormal Returns (Fama–French Model)

Window	Mean (%)	t-Statistic	Min (%)	Med (%)	Max (%)	N
Panel A: All events						
CAR[-1, +1]	-0.1845***	-3.0885	-47.31	-0.1	22.41	2732
CAR[-5, +5]	-0.2761**	-2.5234	-40.51	-0.17	43.37	2732
Panel B: All positive events						
CAR[-1, +1]	-0.1115*	-1.8064	-17.49	-0.08	13.23	1549
CAR[-5, +5]	-0.2847**	-2.2491	-40.51	-0.23	32.13	1549
Panel C: All negative events						
CAR[-1, +1]	-0.2801**	-2.5058	-47.31	-0.13	22.41	1183
CAR[-5, +5]	-0.265	-1.3884	-40.33	-0.06	43.37	1183
Panel D: Positive environmental events						
CAR[-1, +1]	-0.2039**	-2.0512	-17.49	-0.05	11.2	633
CAR[-5, +5]	-0.2841	-1.5422	-22.54	0.03	22.26	633
Panel E: Positive social events						
CAR[-1, +1]	-0.2477***	-3.1918	-13.88	-0.08	13.23	968
CAR[-5, +5]	-0.2955*	-1.7527	-40.51	-0.335	32.13	968
Panel F: Negative environmental events						
CAR[-1, +1]	-0.1688	-0.9821	-26.41	-0.13	13.43	335
CAR[-5, +5]	-0.2862	-0.9113	-33.07	-0.17	29	335
Panel G: Negative social events						
CAR[-1, +1]	-0.1489	-1.1574	-47.31	-0.14	22.41	943
CAR[-5, +5]	-0.2787	-1.2641	-40.33	-0.13	43.37	943

This table reports the cumulative abnormal stock returns calculated using the Fama–French three-factor market model. The three-day [-1, +1] and 11-day [-5, 5] CAR statistics are reported. The test portfolio in Panel A covers all events, that in Panel B covers all events identified as *positive*, that in Panel C covers all events identified as *negative*, that in Panel D covers events classified as both *positive* and *environmental*, that in Panel E covers events classified as both *positive* and *social*, that in Panel F covers events classified as both *negative* and *environmental*, and the portfolio in Panel G covers events classified as both *negative* and *social*. The reported test statistics and significance levels are calculated following Patell (1976). ***, **, and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 3.5: Bondholder Abnormal Returns

Window	Mean (%)	z-Statistic	Min (%)	Med (%)	Max (%)	N
Panel A: All events						
CAR[-1, +1]	0.0521**	2.1120	-16.9493	0.0369	16.6443	1885
CAR[-5, +5]	0.0969*	1.8119	-23.4236	0.0632	34.1978	1885
Panel B: All positive events						
CAR[-1, +1]	0.0343	1.3846	-3.3493	0.0427	4.4270	695
CAR[-5, +5]	0.0402	0.4714	-18.5857	0.0084	8.5433	695
Panel C: All negative events						
CAR[-1, +1]	0.0637*	1.7038	-16.9493	0.0293	16.6443	1067
CAR[-5, +5]	0.1338*	1.7673	-23.4236	0.0929	34.1978	1067
Panel D: Positive environmental events						
CAR[-1, +1]	0.1085***	2.5713	-2.9930	0.0896	4.4270	313
CAR[-5, +5]	0.1231	0.9742	-18.5857	0.0517	8.5433	313
Panel E: Positive social events						
CAR[-1, +1]	-0.0188	-0.6406	-3.3493	0.0195	2.2045	440
CAR[-5, +5]	-0.0184	-0.2403	-8.2635	-0.0064	6.5784	440
Panel F: Negative environmental events						
CAR[-1, +1]	0.0744	0.9506	-5.1079	0.0327	16.6443	328
CAR[-5, +5]	0.1272	0.9628	-9.9102	0.0945	22.5215	328
Panel G: Negative social events						
CAR[-1, +1]	0.0381	0.9727	-16.9493	0.0208	12.5031	903
CAR[-5, +5]	0.1095	1.2922	-23.4236	0.0755	34.1978	903

This table reports the cumulative abnormal bond returns calculated using Eq. (3.7). The event windows of three days [-1, +1] and 11 days [-5, +5] are reported. Panel A shows the results for a portfolio of all events. Panels B and C show the results for a portfolio of events that are all positive and all negative, respectively. Panels D to G show the results for subsamples of events according to their E&S dimensions, that is, all positive environmental events, all positive social events, all negative environmental events, and all negative social events, respectively. The test statistics are calculated following Handjinicolaou and Kalay (1984) and as specified in Eq. (3.8). ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 3.6: Multivariate Regression on Abnormal Change in Market Value

Dependent Variable: Abnormal Change in the Market Value of Debt (ΔMV_BOND_k)				
	(1)	**(2)**	**(3)**	**(4)**
Intercept	466.81***	477.34***	472.81***	475.23***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ΔMV_EQ_k	0.0007	-0.0017	0.0002	0.0023
	(0.6868)	(0.3590)	(0.9258)	(0.4001)
$\Delta MV\_EQ_k \times ENVPOS_k$	-0.0138*	-	-	-
	(0.0949)			
$\Delta MV\_EQ_k \times ENVNEG_k$	-	0.0081**	-	-
		(0.0408)		
$\Delta MV\_EQ_k \times SOCPOS_k$	-	-	-0.0002	-
			(0.9689)	
$\Delta MV\_EQ_k \times SOCNEG_k$	-	-	-	-0.0034
				(0.3260)
$SIZE_i$	-15.025***	-15.678***	-15.526***	-15.667***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ESG_i	-2.9659**	-2.8669**	-2.8005**	-2.7847**
	(0.0168)	(0.0204)	(0.0236)	(0.0244)
ESG_SCORE_i	0.0198**	0.0190*	0.0187*	0.0185*
	(0.0495)	(0.0587)	(0.0634)	(0.0652)
Firm F.E.	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes
Adj. *R*-sq.	0.167	0.168	0.165	0.166
Obs.	1639	1639	1639	1639

This table reports the results of cross-sectional regression on abnormal change in market value. Following Maxwell and Rao (2003), the dependent variable is the abnormal change in the market value of bonds, which is calculated as the three-day CAR multiplied by total debt outstanding. The variable AB_MV_EQ is abnormal change in the market value of equity and is calculated as the three-day CAR multiplied by the one-month prior-to-event market value of equity. The variable *Size* is measured as the natural logarithm of total assets, and ESG is ASSET4's environmental, social, and governance index for the firm and takes a value between zero and 100, with 100 denoting the most socially responsible firm and zero denoting the least socially responsible firm. Firm and year fixed effect (F.E.) coefficients are included but suppressed for brevity. The *p*-values are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 4.1: ASSET4 Country/Region Coverage

Country/Region	Overall CSR Rating	Environmental Rating	Social Rating	No. of Firms	Firm–Year Obs.
Argentina	49.34	43.09	43.61	13	18
Australia	47.80	43.35	49.23	440	2392
Austria	52.51	54.34	53.67	19	201
Belgium	51.54	55.98	49.21	30	324
Bermuda	45.82	37.41	41.08	39	251
Brazil	54.32	54.54	57.81	97	593
Canada	47.63	44.80	48.04	337	2486
Chile	43.81	42.99	41.26	38	166
China	39.42	37.18	33.38	245	1069
Colombia	52.84	50.40	55.49	12	64
Denmark	52.74	56.12	51.67	30	322
Egypt	36.53	27.39	34.39	11	79
Finland	57.69	64.88	57.41	27	334
France	64.33	73.87	67.36	102	1100
Germany	59.34	62.35	64.04	104	993
Greece	51.67	55.53	48.73	23	251
Hong Kong	42.93	43.06	39.10	120	985
India	52.13	51.90	54.55	104	512
Indonesia	51.15	44.99	57.08	39	239
Ireland	52.64	52.71	55.15	40	367
Israel	47.44	44.54	48.03	21	131
Italy	55.15	56.59	58.52	53	568
Japan	50.15	55.93	44.58	441	4004
South Korea	53.42	57.44	51.90	125	602
Kuwait	40.40	36.00	34.11	12	49
Luxembourg	56.36	58.92	59.79	17	103
Malaysia	50.02	45.40	53.40	55	337
Mexico	47.04	44.97	45.64	39	223
Netherlands	60.32	63.73	63.39	54	461
New Zealand	45.53	43.30	42.83	56	205
Norway	57.58	62.11	59.44	20	233
Oman	36.03	29.32	31.51	10	30
Philippines	47.95	44.81	48.43	26	119
Poland	42.77	41.71	38.13	32	211
Portugal	59.71	63.06	64.81	12	129
Qatar	32.13	22.62	26.32	14	62
Russia	45.89	43.37	45.72	42	317
Saudi Arabia	35.27	29.26	26.81	14	66
Singapore	45.22	43.71	43.68	49	497
South Africa	54.20	51.41	59.40	135	709

Table 4.1 (continued…)

Country/Region	CSR Overall Rating	ENV Rating	SOC Rating	No. of Firms	Firm–Year Obs.
Spain	62.41	67.20	68.14	57	571
Sweden	58.91	64.68	61.03	72	684
Switzerland	54.96	58.87	55.50	83	873
Taiwan	43.73	44.27	38.19	142	793
Thailand	57.38	55.15	63.54	40	210
Turkey	53.26	53.93	55.38	27	194
United Arab Emirates	45.15	43.45	40.97	17	70
U.K.	55.64	58.59	56.63	421	3727
U.S.	47.73	44.55	48.93	2444	12792
Total	50.37	50.29	50.56	6400	41716

This table reports the average (mean) CSR rating score, environmental rating score, and social rating score for each country/region. The average scores are calculated by taking the mean across all firms belonging to a country and across the full sampling period. The CSR overall ratings range between zero and 100, where a higher score indicates greater CSR, the *ENV* rating refers to the ASSET4 measure on environmental responsibility and ranges between zero and 100, and the *SOC* rating refers to the ASSET4 measure on social and community responsibility, with values ranging between zero and 100.

Table 4.2: Country/Region Statistics

Country/Region	Legal Origin	Climate Change Regulation	World Bank Income Classification	Culture PDI	Culture IDV	Culture MAS	Culture UAV
Argentina	LO_FR	4.5	High	49	46	56	86
Australia	LO_BR	3.95	High	38	90	61	51
Austria	LO_GE	3.4	High	11	55	79	70
Belgium	LO_FR	5.2	High	65	75	54	94
Bermuda	LO_BR	-	High	-	-	-	-
Brazil	LO_FR	6.65	Mid	69	38	49	76
Canada	LO_BR	3.3	High	39	80	52	48
Chile	LO_FR	4.2	High	63	23	28	86
China	LO_SO	2	Mid	80	20	66	30
Colombia	LO_FR	4	Mid	67	13	64	80
Denmark	LO_SC	3.15	High	18	74	16	23
Egypt	LO_FR	1.35	Low	-	-	-	-
Finland	LO_SC	3	High	33	63	26	59
France	LO_FR	3.5	High	68	71	43	86
Germany	LO_GE	7	High	35	67	66	65
Greece	LO_FR	4.8	High	60	35	57	112
Hong Kong	LO_BR	-	High	68	25	57	29
India	LO_BR	5.85	Low	77	48	56	40
Indonesia	LO_FR	7.25	Low	78	14	46	48
Ireland	LO_BR	5.3	High	28	70	68	35
Israel	LO_BR	5.2	High	13	54	47	81
Italy	LO_FR	10.4	High	50	76	70	75
Japan	LO_GE	3.95	High	54	46	95	92
South Korea	LO_GE	3.9	High	60	18	39	85
Kuwait	LO_FR	-	High	-	-	-	-
Luxembourg	LO_FR	-	High	40	60	50	70
Malaysia	LO_BR	1.8	Mid	104	26	50	36
Mexico	LO_FR	2.55	Mid	81	30	69	82
Netherlands	LO_FR	4.7	High	38	80	14	53
New Zealand	LO_BR	4.5	High	22	79	58	49
Norway	LO_SC	2.6	High	31	69	8	50
Oman	LO_FR	-	High	-	-	-	-
Philippines	LO_FR	5.3	Low	94	32	64	44
Poland	LO_SO	3.5	High	68	60	64	93
Portugal	LO_FR	3.55	High	63	27	31	104
Qatar	LO_FR	-	High	-	-	-	-
Russia	LO_SO	3.85	Mid	93	39	36	95
Saudi Arabia	LO_BR	0.85	High	-	-	-	-
Singapore	LO_BR	3.85	High	74	20	48	8
South Africa	LO_BR	1.5	Mid	-	-	-	-
Spain	LO_FR	6.7	High	57	51	42	86

Table 2 (continued…)

Country/Region	Legal Origin	Climate Change Regulation	World Bank Income Classification	Culture PDI	Culture IDV	Culture MAS	Culture UAV
Sweden	LO_SC	3.2	High	31	71	5	29
Switzerland	LO_GE	3.3	High	34	68	70	58
Taiwan	LO_GE	-	-	58	17	45	69
Thailand	LO_BR	2.55	Mid	64	20	34	64
Turkey	LO_FR	3.1	Mid	66	37	45	85
United Arab Emirates	LO_BR	0.8	High	-	-	-	-
U.K.	LO_BR	11.05	High	35	89	66	35
U.S.	LO_BR	3.9	High	40	91	62	46
TOTAL	-	4.17	-	50.36	46.98	46.73	59.25

This table reports the firm sample aggregated at the country level. The classifications by country of legal origin are obtained from La Porta, Lopez-de-Silanes, Shleifer, and Vishny's (1999) data library. In this table, BR represents firms belonging to a country with British legal origins, also often referred to as common law; FR represents firms belonging to a country with French legal origins, also known as civil law; GE represents firms belonging to a country with German legal origins; SC represents firms belonging to a country with Scandinavian legal origins, and SO represents firms belonging to a country with socialist legal origins. Climate change regulation refers to the number of climate change laws and policies that have been passed in a country according to the GRICC database. The values presented under the climate change legislation column represent the average number of climate change laws and policies in country *j* across the full sample period. Data on climate change legislation and policies are obtained from GRICC. The power distance index (PDI), individualism (IDV), masculinity (MAS), uncertainty avoidance (UAV), pragmatism (PRA), and indulgence (IVR) are all cultural measures of a society as reported by Hofstede (2011).

Table 4.3: Summary Statistics

	No. of Firms	Mean *CSR*	Mean *ENV*	Mean *SOC*	Mean *ROA*	Mean *ROE*	Mean *TOBQ*
Banks	492	51.55	51.19	52.00	13.35	1.26	1.60
Telecommunication Services	162	52.74	51.00	51.74	15.98	7.30	3.81
Materials	635	51.57	51.08	51.45	7.38	5.12	2.57
Utilities	265	52.08	51.02	51.23	9.81	4.74	1.94
Capital Goods	636	50.21	51.12	50.65	12.60	6.60	2.90
Transportation	216	49.77	50.38	50.80	12.27	6.16	2.78
Software & Services	261	48.85	47.56	49.92	13.77	8.81	5.98
Diversified Financials	324	47.18	47.40	47.28	14.67	6.71	2.89
Media & Entertainment	191	48.25	49.35	48.50	13.43	8.05	4.28
Real Estate	422	48.46	49.47	49.13	8.47	4.73	1.96
Retailing	251	47.62	46.69	48.59	16.65	11.53	3.98
Consumer Durables & Apparel	181	49.55	49.99	50.85	14.01	9.29	3.28
Energy	434	51.09	50.63	51.01	5.05	4.14	2.48
Food, Beverage, & Tobacco	238	50.12	49.61	50.61	16.79	9.65	4.01
Consumer Services	193	48.96	48.31	50.97	16.51	9.09	3.74
Pharmaceuticals, Biotechnology, & Life Sciences	310	51.05	50.76	51.34	-0.30	1.27	5.66
Commercial & Professional Services	158	51.62	52.11	51.01	17.34	9.36	3.95
Health Care Equipment & Services	237	50.21	48.65	50.69	12.39	8.16	4.37
Automobiles & Components	110	50.81	52.46	51.32	14.06	8.03	2.64
Household & Personal Products	52	62.47	63.04	63.52	30.85	13.91	7.06
Food & Staples Retailing	82	53.03	55.63	52.68	17.01	8.64	3.93
Insurance	199	51.38	50.60	50.11	16.61	2.72	1.71
Technology Hardware & Equipment	218	50.63	50.13	49.64	9.21	6.68	2.70
Semiconductors & Semiconductor Equipment	133	51.64	51.35	50.11	6.54	6.30	3.29
TOTAL	6400	50.60	50.23	50.37	10.13	4.86	3.14

This table reports the distribution of firms by industry, where the industry is measured using GICS codes at the four-digit level.

Table 4.4: CSR–CFP Relation by Country/Region

	(1) CFP and Overall CSR		(2) CFP and Envir. Rating		(3) CFP and Social Rating	
Argentina	-0.671	(-0.569)	-0.800	(-0.885)	-0.437	(-0.506)
Australia	-0.197***	(-2.814)	-0.135***	(-2.998)	-0.102*	(-1.696)
Austria	-12.386	(-1.406)	-3.200	(-0.618)	-5.717	(-0.826)
Belgium	-0.021	(-0.469)	0.008	(0.271)	0.018	(0.502)
Bermuda	-0.088	(-0.511)	0.009	(0.041)	-0.164	(-1.249)
Brazil	-0.283	(-1.030)	-0.092	(-0.633)	-0.113	(-0.773)
Canada	-0.381	(-1.251)	-0.378	(-1.387)	-0.259	(-1.035)
Chile	-0.010	(-0.483)	-0.025	(-1.179)	-0.022	(-0.993)
China	-0.077	(-2.019)	-0.045*	(-1.710)	-0.029	(-0.976)
Colombia	0.030	(1.172)	0.008	(0.237)	0.045**	(2.450)
Denmark	0.028	(0.693)	0.002	(0.045)	0.063**	(2.075)
Egypt	-0.989**	(-2.076)	-0.534*	(-1.652)	-0.235	(-0.417)
Finland	-0.054	(-1.155)	-0.014	(-0.439)	-0.020	(-0.518)
France	-0.137	(-1.866)	-0.001	(-0.020)	-0.074	(-1.417)
Germany	-0.050	(-0.958)	-0.116**	(-2.273)	-0.030	(-0.773)
Greece	-0.114	(-0.592)	-0.043	(-0.184)	-0.060	(-0.478)
Hong Kong	-0.263	(-0.743)	-0.163	(-0.634)	-0.223	(-0.801)
India	-0.067	(-0.408)	0.016	(0.144)	-0.169	(-0.701)
Indonesia	0.064	(0.392)	0.158	(1.020)	0.092	(0.699)
Ireland	-0.059	(-0.359)	-0.011	(-0.097)	0.171	(0.975)
Israel	-0.017	(-0.119)	0.124	(1.036)	-0.038	(-0.369)
Italy	-0.292	(-0.999)	0.037	(0.215)	0.011	(0.059)
Japan	-0.020	(-1.303)	-0.010	(-0.976)	-0.028**	(-2.284)
South Korea	-0.076	(-1.104)	-0.047	(-0.941)	-0.073	(-1.354)
Kuwait	-0.023	(-0.153)	-0.074	(-0.512)	-0.063	(-0.808)
Luxembourg	-0.299**	(-2.032)	-0.305*	(-1.927)	-0.208*	(-1.673)
Malaysia	0.120	(0.991)	0.058	(0.823)	0.109	(1.126)
Mexico	0.320	(0.542)	0.332	(0.693)	0.248	(0.584)
Netherlands	0.114*	(1.676)	0.035	(0.556)	0.063	(0.817)
New Zealand	0.098	(1.185)	0.055	(1.077)	0.081	(1.031)
Norway	0.110	(0.634)	0.002	(0.013)	0.183*	(1.692)
Oman	-0.804	(-0.828)	-0.600	(-1.195)	-0.258	(-0.377)
Philippines	-0.001	(-0.039)	0.030	(1.332)	0.004	(0.234)
Poland	-0.956	(-0.983)	-0.727	(-1.080)	-0.168	(-0.569)
Portugal	-0.194	(-0.963)	-0.358	(-1.312)	-0.171	(-0.939)
Qatar	-0.154	(-1.036)	0.089	(0.840)	-0.140	(-1.102)
Russia	0.371*	(1.674)	0.348*	(1.748)	0.154	(1.001)
Saudi Arabia	0.053	(0.568)	0.105	(1.445)	0.125	(1.573)
Singapore	-0.047	(-0.559)	0.028	(0.704)	-0.057	(-0.769)
South Africa	-0.008	(-0.182)	-0.031	(-0.852)	0.030	(0.734)
Spain	-0.049	(-0.432)	-0.077	(-0.871)	-0.053	(-0.535)
Sweden	0.007	(0.084)	-0.057	(-0.711)	0.029	(0.563)
Switzerland	-0.032	(-0.567)	-0.024	(-0.438)	-0.013	(-0.359)

Taiwan	-0.048	(-1.232)	-0.040	(-1.262)	-0.049	(-1.589)

Table 4 (continued…)

	(1) CFP and Overall CSR		(2) CFP and Envir. Rating		(3) CFP and Social Rating	
Thailand	-0.015	(-0.315)	-0.079***	(-2.305)	-0.001	(-0.031)
Turkey	0.029	(0.649)	0.03	(0.721)	0.021	(0.552)
UAE	0.244	(0.909)	0.45	(1.229)	-0.262	(-1.324)
U.K.	0.218*	(1.748)	-0.037	(-0.318)	0.076	(0.701)
U.S.	0.108*	(1.818)	0.051	(0.764)	0.088**	(1.873)
Dep. Var.	ROE		ROE		ROE	
Firm Controls	Yes		Yes		Yes	
Industry F.E.	Yes		Yes		Yes	
Year F.E.	Yes		Yes		Yes	
Wald Test of Differences between Coefficients	Yes		Yes		Yes	

This table reports the regression results on the association between overall CSR/environmental responsibility/social responsibility and CFP across each individual country/region. Each country/region sample is estimated separately, using a panel ordinary least squares (OLS) regression specified as $CFP_{i,t} = \alpha_0 + \alpha_1 CFP_{i,t-1} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \beta_k CSR_{i,k,t-1} + \phi_j + \eta_t + e_{i,t}$ where $CFP_{i,t}$ is firm i's financial profitability as measured by ROE, $SIZE_{i,t}$ is the firm size measured as the natural logarithm of total assets, and $LEV_{i,t}$ is the firm leverage ratio calculated as total (book) assets scaled by total (book) liabilities. All regressions include year fixed effects (η_t) and industry fixed effects (ϕ_j). While firm controls, year fixed effects, and industry fixed effects are included in each regression, they have been omitted for the sake of brevity. Intercepts are not reported. Column (1) uses the ASSET4 overall CSR rating as the CSR measure. Column (2) replaces the CSR measure with the ASSET4 environmental rating (ENV). Column (3) replaces the CSR measure with the ASSET4 social rating (SOC). Standard errors are corrected for the clustering of observations at the firm level (t-statistics are reported in parentheses). ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 4.5: Effects of Culture on the CSR–CFP Relation

Dependent Variable:	$ROE_{i,t}$		$ROA_{i,t}$		$TOBQ_{i,t}$	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
C	-58.303***	-58.267***	-21.548***	-22.726***	-4.666***	-4.995***
	(-20.330)	(-15.321)	(-19.417)	(-17.471)	(-13.382)	(-11.644)
$CSR_{i,t-1}$	-0.0503***	-0.0580	-0.0312***	-0.0099	-0.0079***	-0.0036
	(-6.5140)	(-1.1852)	(-11.0027)	(-0.7440)	(-5.9229)	(-0.6983)
$ROE_{i,t-1}$	0.5876***	0.5860***				
	(40.6222)	(40.6521)				
$ROA_{i,t-1}$			0.6354***	0.6346***		
			(49.8189)	(49.7832)		
$TOBINQ_{i,t-1}$					0.5994***	0.5985***
					(34.6051)	(34.7025)
$SIZE_{i,t}$	2.983***	2.991***	1.186***	1.192***	0.272***	0.277***
	(21.7351)	(21.7896)	(21.1062)	(21.1779)	(15.3515)	(15.5493)
$LEV_{i,t}$	-0.099***	-0.100***	-0.047***	-0.047***	-0.002*	-0.002*
	(-8.3077)	(-8.3505)	(-8.9828)	(-9.0005)	(-1.7906)	(-1.7856)
$GDPGR_{k,t-1}$	-0.044***	-0.041***	-0.024***	-0.023***	-0.005***	-0.005***
	(-4.0458)	(-3.7781)	(-6.5660)	(-6.2839)	(-3.4018)	(-3.0724)
$GDPPC_{k,t-1}$	-0.129*	-0.127*	-0.103***	-0.103***	-0.0024	-0.0003
	(-1.9329)	(-1.9041)	(-4.0609)	(-4.0404)	(-0.2343)	(-0.0319)
IDV_k	0.0067	0.0613	0.0020	0.018***	0.005***	0.015***
	(0.7948)	(2.9040)	(0.7504)	(2.6924)	(3.6596)	(5.5146)
PDI_k	-0.0077	-0.0300	-0.0020	-0.0115	0.0015	-0.0041
	(-0.7008)	(-1.2542)	(-0.6180)	(-1.4599)	(0.8693)	(-1.1593)
MAS_k	-0.021***	-0.102***	-0.010***	-0.030***	-0.002*	-0.013***
	(-3.0521)	(-4.7353)	(-3.9444)	(-3.6698)	(-1.7564)	(-3.5643)
UAV_k	-0.022***	0.0161	-0.005**	0.0045	-0.005***	0.0019
	(-3.1087)	(0.9581)	(-2.1800)	(0.7410)	(-4.1106)	(0.7076)
$CSR_{i,t-1} \times IDV_k$		-0.001***		-0.0003***		-0.0002***

		(-2.7102)		(-2.5889)		(-4.2220)
$CSR_{i,t-1} \times PDI_k$		0.0005		0.0002		0.0001
		(1.0727)		(1.3337)		(1.6038)
$CSR_{i,t-1} \times MAS_k$		0.001***		0.000***		0.000***
		(4.1096)		(2.6489)		(3.5219)
$CSR_{i,t-1} \times UAV_k$		-0.001**		-0.000*		-0.000***
		(-2.2676)		(-1.8519)		(-2.620)
Industry & Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Adj. *R*-sq. (%)	43.99***	44.05***	53.99***	54.01***	46.19***	46.22***
Obs.	31,105	31,105	36,231	36,231	36,231	36,231
F-Test of significance on CSR and culture (ρ-value in parentheses)		6.079*** (0.000)		3.430*** (0.002)		4.806*** (0.000)

This table presents the regression results associating the effects of social culture on the CSR–CFP relationship. I measure social culture using Hofstede's four cultural dimensions, defined as individualism versus collectivism (IDV), the power distance index (PDI), masculinity versus femininity (MAS), and uncertainty avoidance (UAV). I control for firm characteristics ($X_{i,t-1}$) such as size, leverage, research and development intensity, and country/region economic conditions (λ_k) such as the GDP per capita and GDP growth. The model also include industry fixed effects (ϕ_j) and year fixed effects (η_t). I measure the effect social culture has on the CSR–CFP relationship by interacting each cultural dimension with CSR as follows: $CFP_{i,t} = \alpha_0 + X_{i,t-1} + \gamma_0 CSR_{i,t-1} + \alpha_1 IDV + \alpha_2 PDI + \alpha_3 MAS + \alpha_4 UAV + \gamma_1 CSR \times IDV + \gamma_2 CSR \times PDI + \gamma_3 CSR \times MAS + \gamma_4 CSR \times UAV + \phi_j + \eta_t + \lambda_k + e_{i,t}$. I do not report the constants and fixed effects for the sake of brevity. Standard errors are corrected for the clustering of observations at the firm level (t-statistics are reported in parentheses). ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 4.6: Effects of Legal Origin on the CSR–CFP Relation

Dependent Variable:	$ROE_{i,t}$		$ROA_{i,t}$		$TOBQ_{i,t}$	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
C	-57.711***	-58.524***	-20.692***	-20.892***	-4.821***	-4.874***
	(-21.176)	(-21.398)	(-18.842)	(-18.976)	(-13.199)	(-13.314)
$CSR_{i,t-1}$	-0.049***	-0.030***	0.635***	0.634***	0.600***	0.600***
	(-6.321)	(-2.928)	(49.777)	(49.756)	(34.827)	(34.823)
$ROE_{i,t-1}$	0.588***	0.587***				
	(40.723)	(40.762)				
$ROA_{i,t-1}$			1.190***	1.188***		
			(21.262)	(21.249)		
$TOBINQ_{i,t-1}$					0.277***	0.276***
					(15.877)	(15.816)
$SIZE_{i,t}$	2.976***	2.970***	-0.048***	-0.048***	-0.002**	-0.002**
	(21.932)	(21.935)	(-8.990)	(-9.022)	(-1.663)	(-1.672)
$LEV_{i,t}$	-0.100***	-0.101***	-0.031***	-0.026***	-0.008***	-0.007***
	(-8.426)	(-8.430)	(-11.066)	(-7.165)	(-6.199)	(-3.832)
$GDPGR_{k,t-1}$	-0.041***	-0.039***	-0.027***	-0.026***	-0.002	-0.002
	(-4.693)	(-4.408)	(-8.393)	(-8.148)	(-1.391)	(-1.248)
$GDPPC_{k,t-1}$	-0.122**	-0.117**	-0.097***	-0.093***	0.0058	0.0060
	(-1.910)	(-1.838)	(-4.035)	(-3.880)	(0.577)	(0.599)
LO_FR_k	-1.208***	1.7230	-0.357***	0.629**	-0.285***	-0.0700
	(-3.109)	(1.533)	(-2.690)	(1.689)	(-4.739)	(-0.420)
LO_GE_k	-2.228***	-0.2566	-0.491***	-0.0314	-0.562***	-0.508***
	(-7.651)	(-0.329)	(-4.459)	(-0.099)	(-12.146)	(-4.009)
LO_SC_k	2.007***	6.647***	1.314***	1.743*	0.0740	0.5524
	(3.607)	(3.313)	(5.564)	(2.131)	(0.817)	(1.550)
LO_SO_k	-2.549***	-1.2669	-0.949***	-1.214*	-0.610***	-0.501**
	(-3.984)	(-0.965)	(-4.353)	(-2.366)	(-5.874)	(-1.858)

$CSR_{i,t-1} \times LO\_FR_k$		-0.054***		-0.018***		-0.0039
		(-2.837)		(-3.017)		(-1.421)
$CSR_{i,t-1} \times LO\_GE_k$		-0.039***		-0.009**		-0.0011
		(-2.662)		(-1.654)		(-0.493)
$CSR_{i,t-1} \times LO\_SC_k$		-0.084***		-0.0083		-0.0086
		(-2.595)		(-0.590)		(-1.520)
$CSR_{i,t-1} \times LO\_SO_k$		-0.0264		0.0078		-0.0023
		(-0.870)		(0.717)		(-0.430)
Industry & Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Adj. *R*-sq.	43.99***	44.01***	54.01***	54.02***	46.14***	46.14***
Obs.	31,105	31,105	36,231	36,231	36,231	36,231
F-Test of Significance on CSR and LO (ρ-value in parentheses)		4.085*** (0.003)		2.242* (0.062)		1.0295 (0.390)

This table reports panel OLS estimates of CSR interacted with the legal origins of a country/region on CFP as measured by ROE and ROA, respectively. Controls include lagged financial performance, firm size, firm leverage, the GDP per capita, the GDP per capita growth, and industry and year fixed effects. I obtain legal origins data from La Porta et al. (1999), who defines a country as having British legal origins (LO_BR), French legal origins (LO_FR), German legal origins (LO_GE), Scandinavian legal origins (LO_SC), or socialist legal origins (LO_SO). Columns (1) and (2) use CSR as the overall CSR rating, and Column (3) and (4) replace the CSR measure with that of ASSET4. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 4.7: Effects of Climate Change Regulation on the CSR–CFP Relation

Dependent Variable:	$ROE_{i,t}$		$ROA_{i,t}$		$TOBQ_{i,t}$	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
C	-56.64***	-56.94***	-21.11***	-21.87***	-5.29***	-5.40***
	(-20.039)	(-19.710)	(-18.760)	(-18.748)	(-13.918)	(-13.733)
$CSR_{i,t-1}$	-0.052***	-0.047***	-0.031***	-0.019***	-0.009***	-0.008***
	(-6.630)	(-3.590)	(-10.686)	(-4.045)	(-7.175)	(-3.873)
$ROE_{i,t-1}$	0.589***	0.589***				
	(40.086)	(40.081)				
$ROA_{i,t-1}$			0.636***	0.636***		
			(49.260)	(49.197)		
$TOBINQ_{i,t-1}$					0.603***	0.603***
					(34.936)	(34.935)
$SIZE_{i,t}$	2.946***	2.949***	1.172***	1.180***	0.275**	0.276***
	(21.475)	(21.473)	(20.754)	(20.801)	(15.588)	(15.603)
$LEV_{i,t}$	-0.101***	-0.101***	-0.049***	-0.049***	-0.002***	-0.0020
	(-8.407)	(-8.405)	(-8.584)	(-8.591)	(-1.383)	(-1.387)
$GDPGR_{k,t-1}$	-0.0238***	-0.024***	-0.0204***	-0.0209***	0.0024	0.002**
	(-3.031)	(-3.049)	(-7.236)	(-7.378)	(1.935)	(1.874)
$GDPPC_{k,t-1}$	-0.096**	-0.095**	-0.093***	-0.091***	0.0088	0.0091
	(-1.703)	(-1.683)	(-4.362)	(-4.265)	(0.764)	(0.790)
$CC\_REG_{k,t-1}$	0.156***	0.191*	0.046***	0.129***	0.030***	0.042***
	(4.895)	(2.348)	(4.004)	(4.232)	(5.513)	(3.169)
$CSR \times CC\_REG_{k,t-1}$		0.000		0.002***		0.000
		(0.435)		(3.085)		(0.930)
Industry & Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Adj. *R*-sq. (%)	43.99***	44.01***	54.01***	54.02***	46.14***	46.14***
Obs.	31,105	31,105	36,231	36,231	36,231	36,231

This table reports the panel OLS estimates of CSR interacted with the degree of climate change regulation on CFP as measured by ROE and ROA,

respectively. The strength of environmental regulation is measured by the number of climate change policies/laws adopted by a country/region k ($CC\_REG_{k,t-1}$) as reported by GRICC. Controls include lagged financial performance, firm size, firm leverage, the GDP per capita, the GDP per capita growth, and industry and year fixed effects. Columns (1) and (2) use the ASSET4 overall CSR rating (CSR) as the CSR measure. Columns (3) and (4) replace the CSR measure with ASSET4's environmental rating (ENV). Columns (5) and (6) replace the CSR measure with ASSET4's social rating (SOC). Standard errors are corrected for the clustering of observations at the firm level (t-statistics are reported in parentheses). ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

APPENDIX A

Figure A2.1: U.S. SRI Mutual Fund Total Net Assets under Management

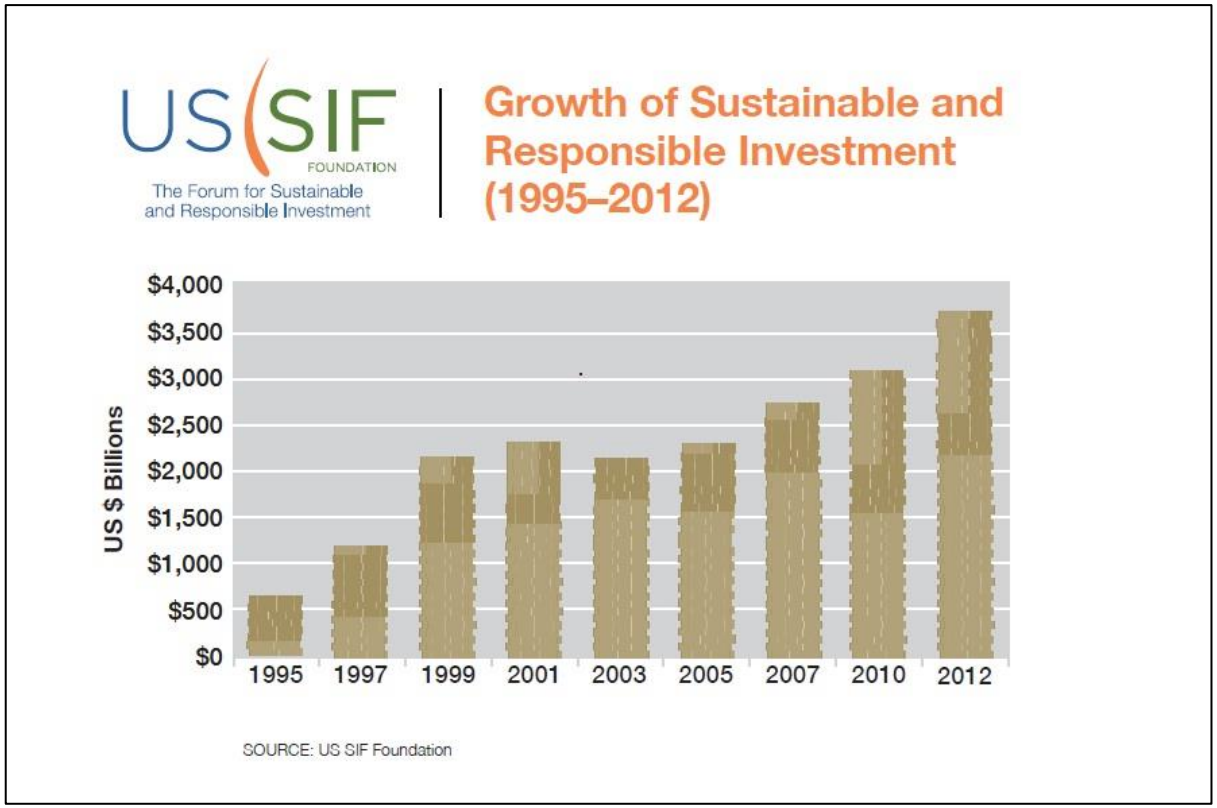


Table A2.1: SRI Fund Sample by Lipper Classification Code

Excluded Lipper Codes	No. of SRI Funds (Full Sample)	Included Lipper Codes	No. of Domestic SRI Funds (Full Sample)	No. of Domestic SRI Funds (Final Sample)
CMD	1	EIEI	14	12
EM	1	LCCE	78	74
GL	3	LCGE	39	32
GLCC	1	LCVE	13	10
GMLC	1	MCCE	21	20
GMLG	4	MCGE	5	3
H	3	MCVE	1	0
ID	2	MLCE	42	38
MATE	1	MLGE	9	6
MTAG	1	MLVE	5	3
MTAM	1	SCCE	27	25
NR	4	SCGE	8	8
RE	1	SCVE	4	1
SPSP	1	SESE	1	1
UT	2	TK	1	1
No Class Code	4			
TOTAL	**31**		**268**	**234**

This table reports the number of U.S. funds that meet the socially responsible investment criteria. In the unfiltered full sample, I find a total of 299 U.S. SRI funds. Funds are categorised into the following Lipper fund classes: equity income funds (EIEI), large-cap core funds (LCCE), large-cap growth funds (LCGE), large-cap value funds (LCVE), mid-cap core funds (MCCE), mid-cap growth funds (MCGE), mid-cap value funds (MCVE), multi-cap core funds (MLCE), multi-cap growth funds (MLGE), multi-cap value funds (MLVE), small-cap core funds (SCCE), small-cap growth funds (SCGE), and small-cap value funds (SCVE). I exclude international, global, real estate, utility, money market, and government security funds, along with funds with no Lipper code classification (100 funds). A further requirement is that the fund have at least 24 months of data to remain in the sample. This reduces the final sample down to 234 funds for the period between January 1990 and December 2013.

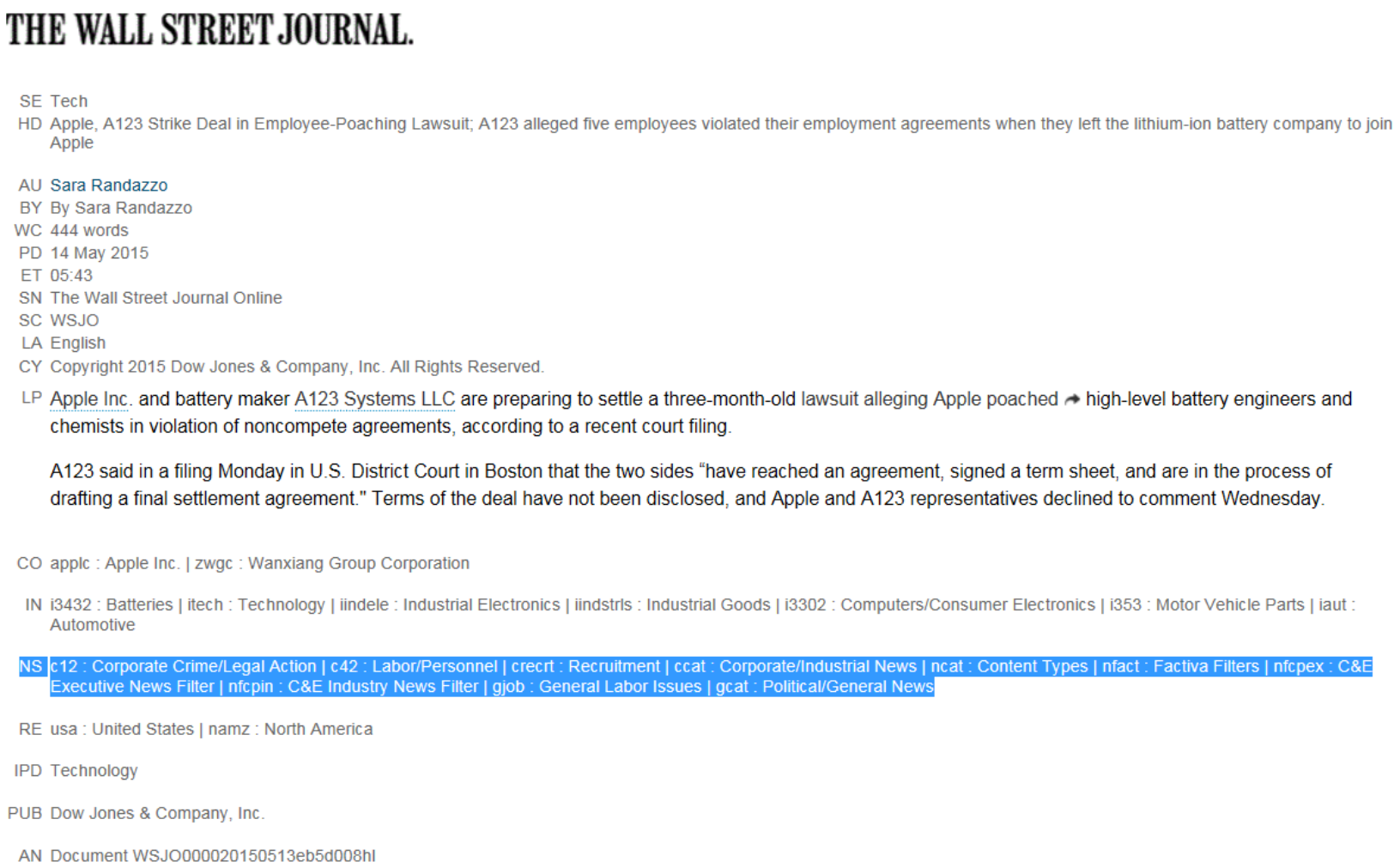
Table A2.2: Lipper Classification Codes

Lipper Class Name	Lipper Class Code
Equity Income Funds	EIEI
Large-Cap Core Funds	LCCE
Large-Cap Growth Funds	LCGE
Large-Cap Value Funds	LCVE
Mid-Cap Core Funds	MCCE
Mid-Cap Growth Funds	MCGE
Mid-Cap Value Funds	MCVE
Multi-Cap Core Funds	MLCE
Multi-Cap Growth Funds	MLGE
Multi-Cap Value Funds	MLVE
Small-Cap Core Funds	SCCE
Small-Cap Growth Funds	SCGE
Small-Cap Value Funds	SCVE
Commodities Funds	CMD
Global Large-Cap Core	GLCC
Health/Biotechnology Funds	H
Industrials Funds	ID
Mixed-Asset Target 2050+ Funds	MATE
Mixed-Asset Target Alloc Growth Fund	MTAG
Mixed-Asset Target Alloc Moderate Fund	MTAM
Natural Resources Funds	NR
Real Estate Funds	RE
Specialty/Miscellaneous Funds	S
S&P 500 Index Objective Funds	SPSP
Utility Funds	UT

Source : CRSP Mutual Fund Variable Definitions

APPENDIX B

Figure A3.1 – Factiva Article Classification Example



THE WALL STREET JOURNAL.

SE Tech
HD Apple, A123 Strike Deal in Employee-Poaching Lawsuit; A123 alleged five employees violated their employment agreements when they left the lithium-ion battery company to join Apple

AU Sara Randazzo
BY By Sara Randazzo
WC 444 words
PD 14 May 2015
ET 05:43
SN The Wall Street Journal Online
SC WSJO
LA English
CY Copyright 2015 Dow Jones & Company, Inc. All Rights Reserved.

LP Apple Inc. and battery maker A123 Systems LLC are preparing to settle a three-month-old lawsuit alleging Apple poached high-level battery engineers and chemists in violation of noncompete agreements, according to a recent court filing.

A123 said in a filing Monday in U.S. District Court in Boston that the two sides "have reached an agreement, signed a term sheet, and are in the process of drafting a final settlement agreement." Terms of the deal have not been disclosed, and Apple and A123 representatives declined to comment Wednesday.

CO applc : Apple Inc. | zwgc : Wanxiang Group Corporation

IN i3432 : Batteries | itech : Technology | iindele : Industrial Electronics | iindstrls : Industrial Goods | i3302 : Computers/Consumer Electronics | i353 : Motor Vehicle Parts | iaut : Automotive

NS c12 : Corporate Crime/Legal Action | c42 : Labor/Personnel | crecrt : Recruitment | ccat : Corporate/Industrial News | ncat : Content Types | nfact : Factiva Filters | nfcpex : C&E Executive News Filter | nfcpin : C&E Industry News Filter | gjob : General Labor Issues | gcat : Political/General News

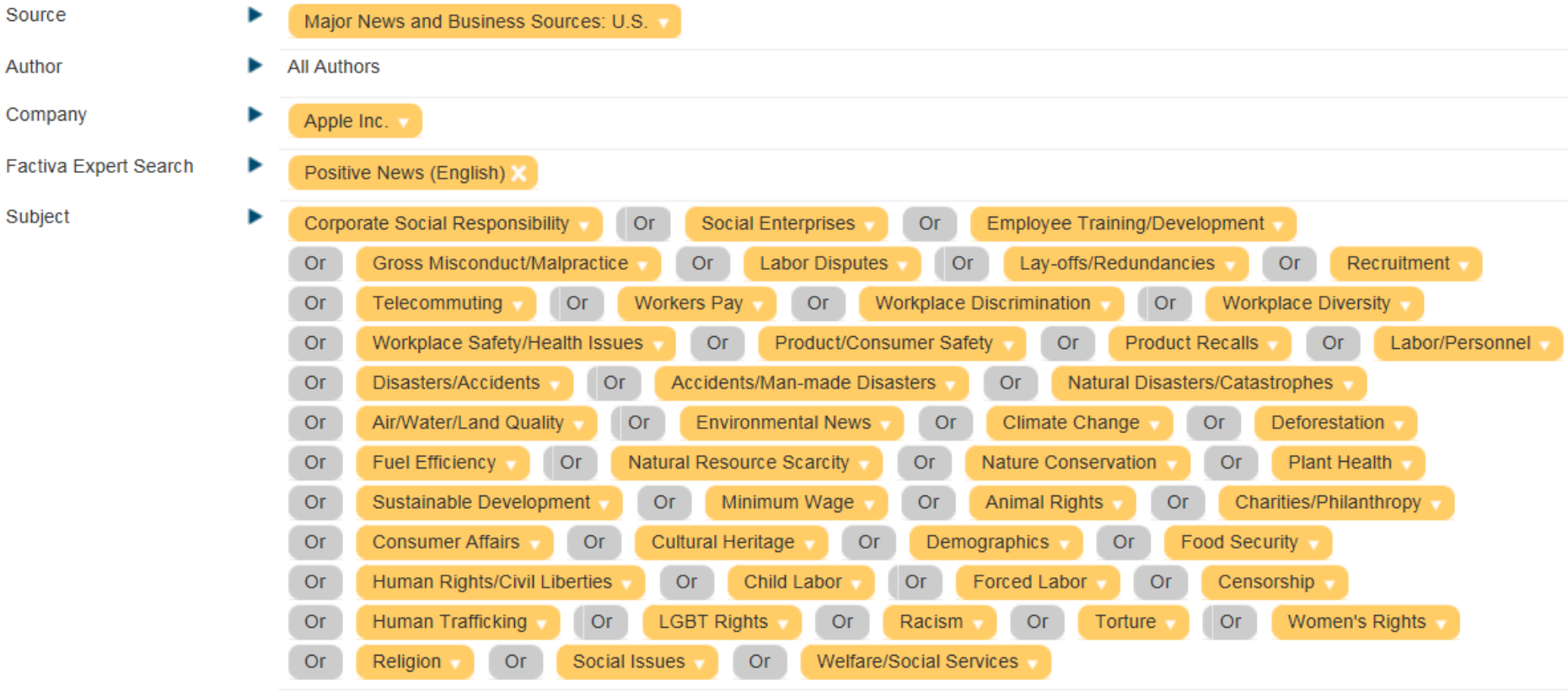
RE usa : United States | namz : North America

IPD Technology

PUB Dow Jones & Company, Inc.

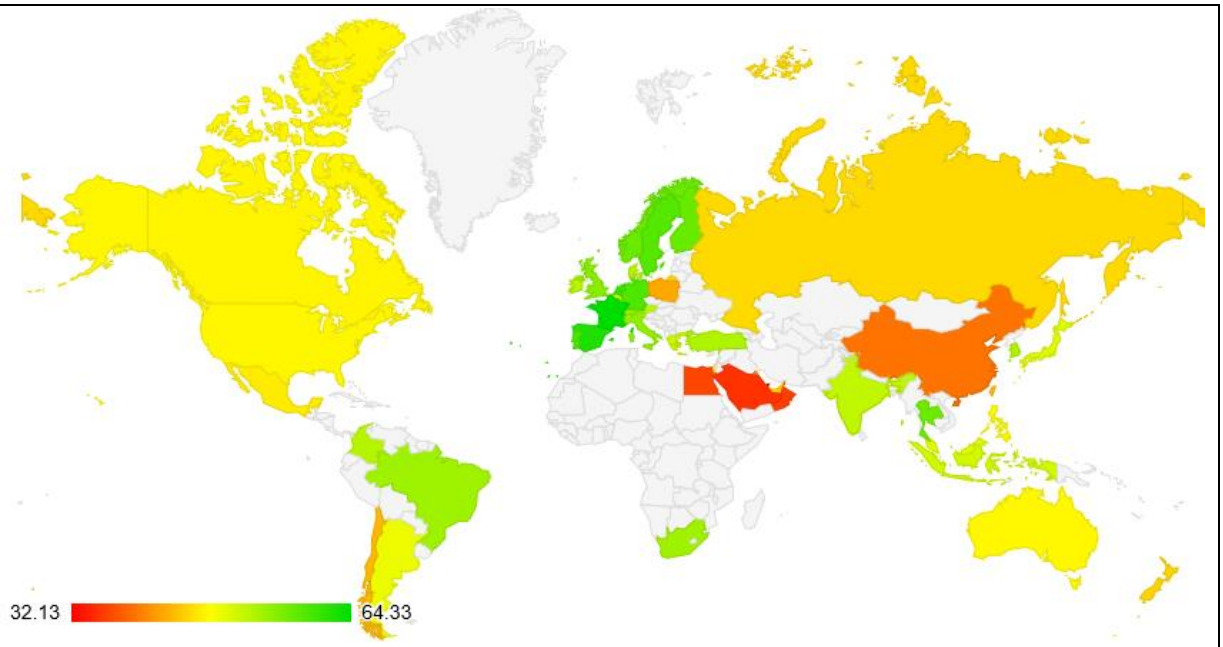
AN Document WSJO000020150513eb5d008hl

Figure A3.2 – Factiva Search Parameters



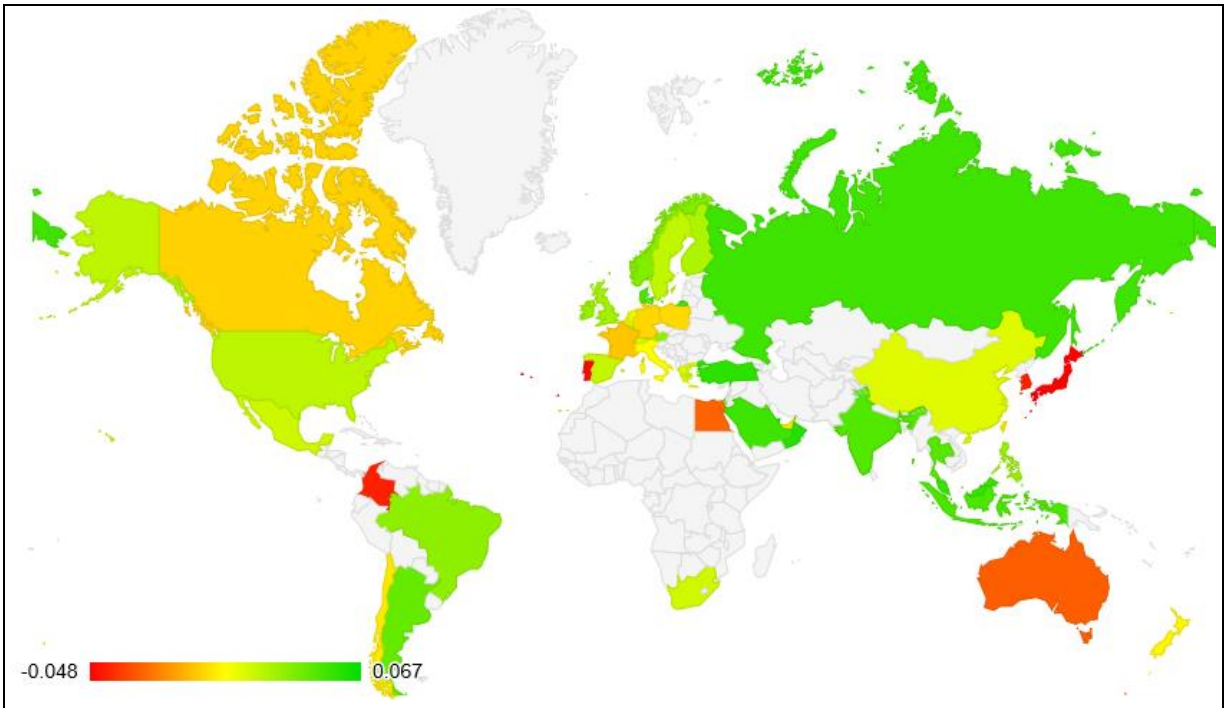
APPENDIX C

Figure A4.1: Overall CSR Ratings



This figure illustrates the average overall CSR rating for each firm operating in one of the 49 country/regions in the sample. A higher CSR rating is indicated by a darker shade of green, while a lower CSR rating is indicated by a darker shade of red. A higher CSR rating indicates that firms operating in that country/region, on average, are more socially responsible, both environmentally and socially.

Figure A4.2: β_c Coefficient on the CSR–CFP Relation



This figure is a global heat map of the estimated coefficient between CSR and CFP according to Eq. 4.1 as follows: $CFP_{i,t} = \alpha_0 + \beta_1\, CSR_{i,t-1} + \alpha_1 CFP_{i,t-1} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \phi\_j + \eta_t + e_{i,t}$, where CFP is measured using a firm's *ROE* value, while CSR is measured as the overall ASSET4 CSR rating. A more positive value, indicated by green, indicates CSR has a positive effect on CFP in that country/region. A negative value, indicated by red, shows that CSR has a negative effect on CFP.

Table A4.1: Descriptive Statistics, Full Sample

	Mean	Std Dev	Min	p25	Median	p75	Max
CSR Score	50.41	17.63	5.17	36.49	49.33	64.08	97.89
ENV Score	50.31	22.67	2.56	31.28	47.97	68.85	99.44
SOC Score	50.60	21.30	2.65	33.97	50.06	66.94	99.10
ROE	11.31	23.86	-99.01	4.67	11.28	19.55	105.77
ROA	6.15	10.55	-37.98	1.52	5.39	10.63	40.39
TOBQ	3.08	4.11	-4.83	1.11	1.94	3.51	27.87
SIZE	22.14	1.43	18.01	21.27	22.12	23.03	25.71
LEV	0.24	0.19	0.00	0.08	0.22	0.35	0.81
R&D	0.03	0.17	0.00	0.00	0.00	0.00	2.02
GDPPC (Current US$)	40918.8	17895.8	627.8	35434.0	45175.2	51603.5	118823.6
GDPGR (%)	1.64	2.66	-15.15	0.84	1.56	2.25	23.94
CC_REG	4.80	4.71	0.00	0.00	4.00	7.00	24.00
CC_POL	2.03	2.93	0.00	0.00	1.00	3.00	17.00
CC_LEG	2.77	2.85	0.00	0.00	2.00	4.00	17.00
HCI_IDV	46.98	26.61	0.00	24.50	47.00	69.50	91.00
HCI_PDI	50.36	25.80	0.00	33.75	55.50	68.00	104.00
HCI_MAS	46.73	22.46	0.00	35.50	50.00	64.00	95.00
HCI_UAV	59.25	29.02	0.00	39.00	61.50	83.50	112.00
SW_HARM	4.06	0.30	3.46	3.86	4.03	4.32	4.62
SW_EMBED	3.63	0.38	3.10	3.31	3.61	3.88	4.50
SW_HEIR	2.31	0.48	1.49	1.88	2.25	2.67	3.49
SW_MAST	3.94	0.16	3.66	3.84	3.92	4.03	4.41
SW_AFF_AUTON	3.64	0.47	2.50	3.32	3.63	4.05	4.39
SW_INT_AUTON	4.44	0.38	3.73	4.19	4.36	4.78	5.13
SW_EGAL	4.76	0.30	4.23	4.49	4.82	5.00	5.27

Table A4.2: Descriptive Statistics, by Country

	No. of Firms	Mean CSR	Mean ENV	Mean SOC	Mean ROE	Mean ROA	Mean Tobin's Q
Argentina	13	48.90	42.25	43.04	18.19	8.79	1.19
Australia	440	47.78	43.23	49.08	3.67	3.01	1.84
Austria	19	52.67	54.34	53.62	11.65	4.97	1.92
Belgium	30	51.48	56.10	49.03	11.46	5.26	1.99
Bermuda	39	45.70	37.33	41.05	12.44	4.74	1.88
Brazil	97	54.09	54.03	57.77	13.01	7.03	3.27
Canada	337	47.72	44.86	48.10	4.90	3.21	2.71
Chile	38	43.60	42.61	41.20	10.95	6.15	2.48
China	245	39.50	37.47	33.20	13.46	7.57	3.41
Colombia	12	53.05	50.38	55.93	9.73	5.39	1.78
Denmark	30	52.81	56.16	51.56	17.68	9.14	4.56
Egypt	11	36.56	28.22	34.10	-0.55	3.30	1.70
Finland	27	57.90	65.51	57.12	14.38	7.65	2.64
France	102	64.48	73.81	67.38	10.54	5.71	2.42
Germany	104	59.47	62.56	63.97	12.35	6.21	2.75
Greece	23	51.40	55.18	48.54	12.19	5.15	2.05
Hong Kong	120	42.97	42.92	39.29	12.89	7.76	2.44
India	104	52.07	52.18	54.27	18.10	10.38	4.52
Indonesia	39	51.25	45.08	57.31	23.91	13.31	4.63
Ireland	40	52.99	52.89	55.89	16.01	6.15	3.95
Israel	21	47.30	44.31	48.17	22.41	7.48	4.07
Italy	53	55.13	56.32	58.53	11.60	3.64	1.92
Japan	441	50.12	55.84	44.62	7.21	5.67	1.86
South Korea	125	53.16	57.25	51.56	7.43	5.31	1.84
Kuwait	12	40.03	36.17	33.53	14.11	4.54	1.93
Luxembourg	17	56.79	59.47	59.83	16.58	8.45	2.77
Malaysia	55	49.75	45.09	53.20	19.71	8.70	4.00
Mexico	39	46.78	43.99	45.84	15.33	9.23	3.59
Netherlands	54	60.28	63.71	63.30	14.24	6.12	3.05
New Zealand	56	45.29	42.97	42.48	9.37	6.80	2.92
Norway	20	57.50	61.59	59.41	7.49	6.53	2.71
Oman	10	36.52	30.09	31.54	15.14	4.18	1.40
Philippines	26	47.55	44.01	48.16	17.05	8.01	3.11
Poland	32	42.77	42.20	37.80	6.73	3.95	1.97
Portugal	12	59.78	63.25	64.78	11.59	2.85	2.93
Qatar	14	32.00	22.63	26.27	15.58	6.13	2.19
Russia	42	45.95	43.53	45.98	14.17	9.01	2.05
Saudi Arabia	14	35.21	29.48	26.71	17.55	8.97	2.36
Singapore	49	45.38	43.93	43.75	15.41	7.54	3.01
South Africa	135	53.98	51.13	59.13	16.13	8.78	3.10
Spain	57	62.64	67.69	68.28	15.26	5.48	3.48

Appendix A: Distribution of Firms by Country×Industry (continued…)

	No. of Firms	Mean CSR	Mean ENV	Mean SOC	Mean ROE	Mean ROA	Mean Tobin's Q
Sweden	72	58.71	64.59	60.40	16.67	8.72	2.98
Switzerland	83	54.75	58.35	55.11	12.86	6.66	3.42
Taiwan	142	43.70	44.11	38.35	10.94	6.34	2.27
Thailand	40	57.16	54.97	63.57	19.80	8.95	4.13
Turkey	27	53.20	53.71	55.48	20.73	7.91	2.61
UAE	17	45.34	43.55	40.93	9.14	4.04	1.89
U.K.	421	55.58	58.57	56.46	16.72	7.83	3.53
U.S.	2444	47.90	44.67	49.19	11.00	5.96	3.87
TOTAL	6400	50.60	50.23	50.37	10.13	4.86	3.14

Table A4.3: Descriptive Statistics, by Year

	No. of Firm–Years	Mean CSR	Mean ENV	Mean SOC	Mean ROE	Mean ROA	Mean Tobin's Q
2004	1300	50.39	50.35	50.41	15.37	8.09	3.57
2005	1649	50.25	50.18	50.49	17.15	8.79	3.54
2006	1763	50.58	50.50	50.81	18.28	9.36	4.18
2007	1939	50.55	50.58	50.71	17.75	9.11	3.84
2008	2326	50.39	50.46	50.58	12.29	6.70	1.88
2009	2697	50.41	50.48	50.64	8.94	5.01	2.97
2010	3133	50.44	50.48	50.55	13.59	7.28	3.24
2011	3284	50.60	50.59	50.82	13.21	7.37	2.45
2012	3384	50.33	50.41	50.43	10.82	6.32	2.62
2013	3497	50.43	50.49	50.51	10.39	5.82	2.96
2014	3608	50.34	50.24	50.61	10.11	5.87	2.82
2015	4327	50.50	50.43	50.88	7.98	4.33	3.06
2016	4853	50.32	50.13	50.48	8.06	4.47	3.11
2017	3956	50.33	49.44	50.47	8.71	4.58	3.78
Total	41,716	**50.41**	**50.31**	**50.60**	**10.13**	**4.86**	**3.14**

Table A4.4: ASSET4 Dataset Items

Emissions Reduction Policy	Does the company have a policy to reduce emissions?
CO2 Equivalents Emission Total (tonnes)	Total CO2 and CO2 equivalents emission in tonnes.
CO2 Equivalents Emission Direct (tonnes)	Direct CO2 and CO2 equivalents emission in tonnes.
CO2 Equivalents Emission Indirect (tonnes)	Indirect of CO2 and CO2 equivalents emission in tonnes.
CO2 Equivalent Indirect Emissions, Scope Three (tonnes)	Total CO2 and CO2 Scope Three equivalent emission in tonnes.
Commercial Risks and/or Opportunities Due to Climate Change	Is the company aware that climate change can represent commercial risks and/or opportunities?
CO2 Reduction	Does the company show an initiative to reduce, reuse, recycle, substitute, phase out, or compensate CO2 equivalents in the production process?
Ozone-Depleting Substances Reduction	Does the company report on initiatives to recycle, reduce, reuse or substitute ozone-depleting (CFC-11 equivalents, chlorofluorocarbon) substances?
NOx and SOx Emissions Reduction	Does the company report on initiatives to reduce, reuse, recycle, substitute, or phase out SOx (sulphur oxides) or NOx (nitrogen oxides) emissions?
NOx Emissions (tonnes)	Total amount of NOx emissions emitted in tonnes.
SOx Emissions (tonnes)	Total amount of SOx emissions emitted in tonnes.
VOC Emissions Reduction	Does the company report on initiatives to reduce, substitute, or phase out volatile organic compounds (VOC)?
VOC Emissions (tonnes)	Total amount of volatile organic compounds (VOC) emissions in tonnes.
Waste Total (tonnes)	Total amount of waste produced in tonnes.
Non-Hazardous Waste (tonnes)	Total amount of non-hazardous waste produced in tonnes.
Hazardous Waste (tonnes)	Total amount of hazardous waste produced in tonnes.
Waste Recycling Ratio	Total recycled and reused waste produced in tonnes divided by total waste produced in tonnes.
Water Pollutant Emissions (tonnes)	Total weight of water pollutant emissions in tons.
Waste Reduction Initiatives	Does the company report on initiatives to recycle, reduce, reuse, substitute, treat or phase out total waste?

Environmental Management System Certified Percent	The percentage of company sites or subsidiaries that are certified with any environmental management system.
Sustainable Transportation	Does the company report on initiatives to reduce the environmental impact of transportation of its products or its staff?
Environmental Expenditures	Total amount of environmental expenditures.
Energy Efficiency Policy	Does the company have a policy to improve its energy efficiency?
Toxic Chemicals or Substances Reduction	Does the company report on initiatives to reduce, reuse, substitute or phase out toxic chemicals or substances?
Energy Use Total (GJ)	Total direct and indirect energy consumption in gigajoules.
Direct Energy Purchased (GJ)	Direct energy purchased in gigajoules.
Direct Energy Produced (GJ)	Direct energy produced in gigajoules.
Coal Energy Purchased (GJ)	Coal energy purchased in gigajoules.
Coal Energy Produced (GJ)	Coal energy produced in gigajoules.
Natural Gas Energy Purchased (GJ)	Natural gas energy purchased in gigajoules.
Natural Gas Energy Produced (GJ)	Natural gas energy produced in gigajoules.
Oil Energy Purchased (GJ)	Oil energy purchased in gigajoules.
Oil Energy Produced (GJ)	Oil energy produced in gigajoules.
Electricity Purchased (GJ)	Electricity purchased in gigajoules.
Electricity Produced (GJ)	Electricity produced in gigajoules.
Renewable Energy Use	Does the company make use of renewable energy?
Green Buildings	Does the company report about environmentally friendly or green sites or offices?
Water Efficiency Policy	Does the company have a policy to improve its water efficiency?
Water Use Total (m^3)	Total water withdrawal in cubic meters.
Water Recycled (m^3)	Amount of water recycled or reused in cubic meters.
Environmental Supply Chain Management	Does the company use environmental criteria (ISO 14000, energy consumption, etc.) in the selection process of its suppliers or sourcing partners?

Energy Footprint Reduction	Does the company describe initiatives in place to reduce the energy footprint of its products during their use?
Environmental R&D Expenditures	Total amount of environmental R&D costs (without clean up and remediation costs).
Renewable/Clean Energy Products	Does the company develop products or technologies for use in the clean, renewable energy (such as wind, solar, hydrothermal and geothermal and biomass power)?
Water Technologies	Does the company develop products or technologies that are used for water treatment, purification or that improve water use efficiency?
Product Innovation/ Product Impact Minimization	Does the company report about take-back procedures and recycling programmes to reduce the potential risks of products entering the environment? OR Does the company report about product features and applications or services that will promote responsible, efficient, cost-effective and environmentally preferable use?
Policy	Does the company have a competitive employee benefits policy or ensuring good employee relations within its supply chain? AND Does the company have a policy for maintaining long-term employment growth and stability?
Employment Satisfaction	The percentage of employee satisfaction as reported by the company.
Salaries	Average salaries and benefit in U.S. dollars (Salaries and Benefits (U.S. dollars) /Total Number of Employees).
Salaries Distribution	Total salaries and benefits divided by net sales or revenue.
Bonus Plan for Employees	Does the company claim to provide a bonus plan to most employees?
Generous Fringe Benefits	Does the company claim to provide its employees with a pension fund, health care or other insurances?
Employment Awards	Has the company won an award or any prize related to general employment quality or 'Best Company to Work For'?
Trade Union Representation	Percentage of employees represented by independent trade union organisations or covered by collective bargaining agreements.
Employees Leaving	Number of employees who left the company during the year.
Turnover of Employees	Percentage of employee turnover.
Policy	Does the company have a policy to improve employee health and safety within the company and its supply chain?
Total Injury Rate	Total number of injuries and fatalities, including no-lost-time injuries relative to 1 million hours worked.
Lost Time Injury Rate	Total number of injuries that caused the employees and contractors to lose at least a working day relative to 1 million hours worked.
Lost Days	Number of lost working days of the employees and contractors.
HIV-AIDS Programme	Does the company report on policies or programmes on HIV/AIDS for the workplace or beyond?
Policy	Does the company have a policy to support the skills training or career development of its employees?
Average Training Hours Per Employee	Average hours of training per year per employee.

Training Costs Total	Total training costs from all the training performed by all employees.
Internal Promotion	Does the company claim to favour promotion from within?
Management Training	Does the company claim to provide regular staff and business management training for its managers?
Policy	Does the company have a work–life balance policy? AND Does the company have a diversity and equal opportunity policy?
Women Employees	Percentage of women employees.
Women Managers	Percentage of women managers.
Positive Discrimination	Does the company promote positive discrimination?
Flexible Working Hours	Does the company claim to provide flexible working hours or working hours that promote a work-life balance?
Day Care Services	Does the company claim to provide day care services for its employees?
Policy	Does the company have a policy to guarantee the freedom of association universally applied independent of local laws? AND Does the company have a policy for the exclusion of child, forced or compulsory labour?
Human Rights Contractor	Does the company report or show to use human rights criteria in the selection or monitoring process of its suppliers or sourcing partners?
Human Rights Breaches Contractor	Does the company report or show to be ready to end a partnership with a sourcing partner if human rights criteria are not met?
Policy	Does the company have a policy to strive to be a good corporate citizen or endorse the Global Sullivan Principles? AND Does the company have a policy to respect business ethics or has the company signed the UN Global Compact or follow the OECD guidelines?
Donations Total	Total amount of all donations by the company.
Cash Donations	Total amount of cash donations.
In-Kind Donations	Total amount of other donations (in kind, volunteer work, research funded through the company's foundations, shares).
Donations	Does the company make donations in cash or in kind?
Crisis Management Systems	Does the company report on crisis management systems or reputation disaster recovery plans to reduce or minimise the effects of reputation disasters?
Product Responsibility/ Policy	Does the company have a policy to protect customer health and safety? AND Does the company have a products and services quality policy?
Customer Satisfaction	The percentage of customer satisfaction as reported by the company.
Product Access Low Price	Does the company distribute any low-priced products or services specifically designed for lower income categories (e.g. bridging the digital divide, telecommunications, low cost cars and micro-financing services)?
Healthy Food or Products	Does the company reportedly develop or market products and services that foster specific health and safety benefits for the consumers (healthy, organic or nutritional food, safe cars, etc.)?