Assessing the Rate of Return of the Adoption of Corporate Social Responsibility Initiatives

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To Neve

Who was born in the same year as this thesis

Declaration

I hereby declare that this thesis is original and has been carried out by the author unless otherwise stated.

Marina Martin Curran Date:

Figures and Tables

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Acronyms

AGM	Annual General Meeting
ANOVA	Analysis of variance
APEC	Asia Pacific Economic Co-operation
CDF	Cumulative distribution function
CEPAA	Council on Economic Priorities Accreditation Agency
CSIU	Calvert Social Index Universe
CSP	Corporate social performance
CSR	Corporate Social Responsibility
DEFRA	Department for Environment, Food and Rural Affairs
DFID	Department for International Development
DTI	Department of Trade and Industry
EEA	European Economic Area
EIRIS	Ethical Investment Research Service
EMAS	Eco-Management and Audit Scheme
EMS	Environmental Management System
EPS	Earnings per share
ESOP	Employee stock ownership plans
ETI	Ethical Trading Initiative
FAO	Food and Agriculture Organisation
FAWC	Farm Animal Welfare Council
FLO	Fair Trade Labelling Organisation
FTSE	Financial Times Stock Exchange
GMO	Genetically Modified Organisms
GRI	Global Reporting Initiative
IBLF	International Business Leaders Forum
ICCR	Interfaith Center on Corporate Responsibility
IFOAM	International Federation of Organic Agriculture Movements
ILO	International Labour Organisation
IPPC	Integrated Pollution Prevention and Control
IPR	Intellectual Property Rights
ISO	International Standards Organisation
MBA	Masters of Business Administration
MP	Member of Parliament
NGO	Non Governmental Organisation

OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
R&D	Research and Development
ROCE	Return on capital employed
ROE	Return on equity
RSPCA	Royal Society for the Prevention of Cruelty to Animals
S&P	Standard and Poor
SA	Social Accountability
SRI	Socially Responsible Investment
UKROFS	UK Register of Organic Food Standards
UNEP	United Nations Environment Programme
WTP	Willingness to Pay

Abstract

The thesis investigates the relationship between corporate social responsibility (CSR) and financial performance. The thesis is organised into three parts. The first part, the literature review, is in three sections, the first section provides an introduction to the field of corporate social responsibility, its grounding in economic theory and its historical background. The second part of the literature review covers the social and environmental issues relevant specifically to the food and agriculture sector. The third section is a systematic review of the studies that examine the relationship between corporate social performance and financial performance. This review was carried out using a modified Cochrane systematic review method, more commonly found in the medical literature than in the economics literature. The results showed that 70% of the studies reviewed showed a positive and statistically significant relationship between CSR and financial performance.

The second part of the thesis includes three empirical studies. The first study, an event study, assessed the impact of the FTSE4Good Index on firm price. The study examined the return to companies of being included in a modified share index that signals good performance in terms of CSR. The results of this event study showed that companies are not rewarded for being included in the index and are not penalised for being deleted from it. The second empirical study, a probit analysis, aimed to identify the probability of a company passing a social and environmental screen given information about the company's size, financial performance and sector. Results showed that companies with small market capitalisation, low income gearing and high net profit margins were more likely to pass the screen than other companies. Companies in the energy sector were less likely to pass than other companies, and financial sector companies more likely to pass. The third empirical chapter assessed the effect on the financial performance of companies of passing a socially responsible investment screen. The results showed that there was a relationship between passing the screen and higher earnings per share, but the relationship between passing the screen and other financial indicators was not proven. These studies demonstrated the difficulties that exist to provide statistically strong evidence for the relationship between corporate social responsibility and financial performance.

Thus the third part of the thesis moved into a different area, from the supply to the demand side. This is the valuation of non-financial indicators and their relationship with CSR, this included a discursive chapter on intangibles and their relationship with CSR and a final

empirical study: a choice experiment. This study demonstrated that MBA students take non-financial and ethical issues into account when making investment decisions.

In conclusion, providing strong evidence for the relationship between corporate social responsibility and financial performance is difficult. There are many ways of measuring CSR and many ways of measuring financial performance. Depending on the measures used, different results are obtained. Looking beyond conventional financial performance measurements, to intangibles, provides a more holistic picture of what is going on in the relationship and shows that there is more to company valuation and investment decision making than financial performance indicators. CSR is an important component of company reputation and has an intrinsic value that is difficult to measure but is no doubt very high.

1.0 Introduction

Companies are responsible for their social and environmental impacts and should seek to manage and monitor those impacts accordingly. This is what is meant by Corporate Social Responsibility (CSR). The term is new but the concept is not. In recent years, more and more companies have been declaring themselves socially responsible, opting into CSR schemes, labelling themselves with the term CSR and publishing CSR reports alongside their annual reports. This thesis examines the economic theories and background to CSR, its history and its relationship with company financial performance.

The food, drink and agriculture sector's approach to CSR is the subject of the initial enquiry . There is a number of CSR issues that cut across all sectors e.g. business ethics, but there are others that are specific to the food and agriculture sector: e.g. animal welfare and the link between nutrition and obesity. These issues are examined in turn.

The main body of the thesis investigates the financial returns resulting from the adoption of CSR. For the last 30 years, attempts have been made to identify whether CSR initiatives impact on the financial performance of a company. Over 100 studies have been published since the early 1970s in a variety of sectors. Chapter 2 is devoted to the systematic review of these studies in an attempt to draw conclusions on past research as to the net relationship between CSR and financial performance. The three empirical chapters (chapters 3, 4, and 5) use a variety of datasets and econometric techniques to assess the financial returns to CSR. The datasets are the FTSE4Good indices and the Calvert Social Index Universe.

Chapter 6 is a discursive chapter on intangible assets which came about as a result of the outcomes of the empirical chapters. This discussion then led to a choice experiment being carried out (chapter 7). The final chapter summarises the thesis findings.

The aims of thesis are to gather the available evidence for the relationship between corporate social responsibility and financial performance and to analyse it and show whether there is a relationship and what it is. The next aim was to carry out a number of studies to provide more evidence and stronger statistically significant evidence for a relationship using a number of different indicators of corporate social responsibility and of financial performance.

1.1 Background to Corporate Social Responsibility

1.1.1 Definitions and Theories

The term Corporate Social Responsibility (CSR) defines how a company conducts its business in a socially acceptable way and that it is accountable for its effects on all of its stakeholders, including the environment. Thus, CSR is a measure of the total impact of a business's activities on the lives of individuals within and without the company (European Commission 2001). Within the company, this includes human resources, health and safety, adaptation to change, management of environmental impacts and natural resources. Issues relating to the company's relationship with the outside world include local communities, business partners, suppliers and consumers, human rights, and global environmental concerns (European Commission 2001).

There are several economic theories to explain why CSR occurs in the firm. I have identified the major theories that best frame CSR within economics and discuss the similarities and differences within and between theories that explain the existence of CSR. I also discuss Friedman's much criticised discussion of CSR within a firm which has been seen as anti-CSR. I present a systematic framework that suggests that it is in fact not anti-CSR.

In order to put CSR into context, a brief background to management theory is given here. The profit-maximisation theory assumes that the sole purpose of companies is to maximise profits. This is achieved despite the separation of ownership and control. Shareholders can try to ensure that the interests of the managers and the shareholders coincide. By giving senior managers a quantity of shares that is small relative to the total number of shares in issue, but large relative to managerial salaries, shareholders can try to ensure that senior managers care about profits as much as other shareholders do (Begg, Fischer, & Dornbusch 1997). Managerial theory (of which profit-maximisation theory is a part of) holds that management is not only interested in profit, but also in the number of staff under its control. Large numbers of staff are valued because they lead to the manager getting more salary, more prestige and more security. In addition, management is interested in "management slack" e.g. perks such as a big office, an expense account and a company car. The utility-maximising firm spends more on staff than is justified by profits. Employees maximise their own utility, not the firm's profits, and yield inefficiencies as a result (known as x-inefficiency). In fact, instead of maximising, people normally satisfice, they aspire to a satisfactory level or rate of profit. This

has implications for CSR because CSR demands that managers consider all stakeholders of the company and not just shareholders when making decisions. Therefore they are bound not to profit maximise if this means causing harm to other stakeholders such as their staff.

The second theory is the social permission theory, this holds that corporations exist and act by permission of society at large and/or of the state. Corporations are obliged to consider all possible "constituents" or stakeholders because they make up society at large. These constituents were the ones who gave corporations permission to do business in the first place and thus it is they to whom corporations are obligated (den Uyl 1984). This is important because it complements individual agreement theory which is discussed shortly.

The fundamentalist theory is said to hold that corporations have no obligations beyond the pursuit of profits within a context of free and open competition. The two main exponents of the fundamentalist theory, Levitt (1958) and Friedman (1970) generate two different approaches to this issue. Levitt's approach is called functional theory. This tends to conceive CSR as morally neutral or amoral. Corporations are believed to have certain functions or structural principles that dictate their role in society. Corporations meet their social responsibilities by obeying the law, since determining social welfare is the function of the state and not the corporation. The very integrity and nature of a corporation is its responsiveness to changing circumstances and demand. Those that respond properly to economic and other factors will survive, while those that do not respond will perish. Thus, if the current climate of opinion demands that corporations be "socially responsible" then corporations must be so.

The second approach, the individual agreement theory also known as agency theory (McWilliams & Siegel 2001) and supported by Friedman is quite opposite to the social permission theory. The stakeholders are only those who voluntarily enter into exchange agreements with the business in contrast to the social permission theory where companies are permitted to exist by society. The responsibility to these stakeholders is to live up to the terms agreed upon. The responsibilities, which a business has to those who are not its stakeholders, are simply to avoid violating their individual rights while the stakeholders are being served. As Friedman put it:

"*There is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition, without deception or fraud*"

Friedman's argument is often subjected to criticism but is rarely presented systematically. His arguments depend on an assumption that can be stated in either weak (hypothetical) or strong (categorical) form. The weak version would be if we want to maintain a capitalist society, the sanctity of the contract must remain inviolable (deception and fraud violate that sanctity). The strong version might read: there is no morally legitimate reason to call for the violation of contractual relationships for the sake of some other social good which is not itself necessary for the very existence of social order. Whether one picks the strong or weak version, it is clear that the sanctity of the contract represents a strong moral commitment. Given this commitment, Friedman's argument would have two basic parts:

The Profit Maximisation Argument

1. Corporate managers are fiduciaries of the corporate owners (e.g. shareholders)
2. Corporate owners have only one interest in, and reason, for hiring managers: to maximise profits
3. Therefore, corporate managers would violate their fiduciary trust by engaging in actions that are unrelated to (or which consciously minimise) profit maximisation.

The Social Responsibility Argument

4. Acts of corporate charity (social responsibility) lessen the amount of profits the firm and or owners receive
5. If corporate managers act in ways described in point 4, they would violate their contractual responsibilities to the owners (point 3).
6. A call for managers to be "socially responsible" is a call for them to violate their contractual actions (points 4 and 5)
7. Thus, managers should not direct their firms into socially responsible activities (den Uyl 1984).

It seems that Friedman leaves no room for manoeuvre, however he doesn't state whether firms should "profit maximise" in the short or long term. This may affect companies' behaviour. Also, there is some vagueness about what Friedman means by the "rules of the game" and "open and free competition". Why are "deception and fraud" given such a central role? Friedman's argument would seem to need a broader and firmer ethical foundation to provide the context within which his CSR argument would function. Friedman doesn't preclude the pursuit of moral goods, only the pursuit of those goals at the expense of profitability. Morality and profitability are not necessarily in conflict, they may be compatible and mutually interdependent concepts.

Several theories have been proposed to overcome the apparent incompatibility between profitability and social responsibility or "morality". Individual human rights theory means that a person is free to pursue his or her own ends provided those ends do not prevent others from being able to formulate purposes of their own. Because of the theory of individual rights, corporations cannot employ acts of violence, fraud, or deception against consumers or competitors. This theory of individual rights also explains why employees of a corporation must live up to their contract with the owners not to sacrifice profits. The only universally obligatory "social responsibility" of a firm is to respect individual rights, rather than to increase profits.

Another theory is that there is ambiguity in the idea of what constitutes profitability. Factors contributing to profits are usually perceived as exclusively quantitative. For the most part the world of business is one of facts and figures, however there are qualitative elements such as image, personal relations etc that can impact on profitability in ways that are not easily quantifiable. Another theory again is based on a manager's choice between morality and profitability. He can consider his or her moral values as goods that have value in their own right and as goods that have value because they contribute to some other end (den Uyl 1984). Aristotle held that it is possible for there to be something which is an end in itself and not merely a means to some other end. Managers therefore can make decisions that are consistent morally and with profitability. Managers do have a degree of flexibility in pursuing the overall goals of the firm.

Three basic principles for CSR can be drawn from the theories presented above. The first is that no action should be taken which violates another's individual rights. Second, recommendations must be responsible in the sense that they do not ignore the context, purpose and basic contractual commitments of those to whom the recommendation is made and third the moral dimensions of an action should always be given serious attention (den Uyl 1984).

Another theory describes CSR using the resource-based view of the firm. This offers CSR researchers a tool for refining the analysis of how corporate social policy influences the bottom line. The resource-based view has a strong focus on performance as the key outcome variable. This view explicitly recognises the importance of intangible concepts, such as know-how, corporate culture and reputation. This view holds that a firm's competitive advantage is rooted inside a firm, in assets that are valuable and inimitable (Russo & Fouts 1997).

The stakeholder theory of the firm replaces the notion that managers have a duty to shareholders with the concept that managers have a fiduciary relationship with stakeholders (Evan & Freeman 1993;Freeman 1984). Stakeholders are a group who have a stake in or claim on the firm. They include suppliers, customers, employees, shareholders and the local community as well as management in its role as agent for these groups. The stakeholder theory must be consistent with these principles:

Principle of corporate rights: the corporation and its managers may not violate the legitimate rights of others to determine their own future

Principle of corporate effects: the corporation and its managers are responsible for the effects of their actions on others.

These two principles hold with the notion of corporate social responsibility.

I subscribe to the stakeholder theory. Firms have a duty to all their stakeholders, not just to their shareholders. It is in the interest of firms to be responsible to all stakeholders: good labour relations means lower staff turnover, good environmental stewardship means less fines and litigation. From the firms's point of view, they are profit maximising with a risk management factor included which outwardly can be communicated as CSR.

1.1.2 The firm's motives for engaging in CSR

There are several factors that motivate the firm to engage in CSR. Key among these factors are profit, image, and reputation, altruism, consumer demand, government policy and economic climate.

1.1.2.1 Profit

As seen in the previous section, the firm exists for profit maximisation. With this in mind, the chief motive for a firm to engage in CSR will be as a means of making profits, for example by improving its image or attracting new markets. The profit-maximising theory of the firm predicts that firms will adopt policies that can be demonstrated, *ex ante*, to meet or exceed firms' profit criteria. Thus, from a managerial perspective, environmental policies (or socially responsible policies) can be classified along two attributes:

- they meet or exceed the *ex ante* profit criteria as stipulated in capital budgeting or some other established investment appraisal procedure
- they are required by law or they are beyond-compliance (they overcomply with existing legislation) (Prakash 2000).

Based on these attributes, four policy types can be identified:

- Type 1: beyond-compliance and meet or exceed the profit criteria
- Type 2: beyond-compliance but cannot or do not meet the profit criteria
- Type 3: required by law and meet or exceed the profit criteria
- Type 4: required by law but cannot or do not meet the profit criteria (Prakash 2000).

Where the law requires policy Types 3 or 4 to be adopted, firms are expected to do so. Type 1 policies, though not required by law, are consistent with the profit-maximising model of a firm since they meet the *ex ante* profit criteria. For example, scholars suggest that firms can increase profits by voluntarily reducing pollution. Such policies enable firms to capture the "low hanging fruit" (Prakash 2000). It is also suggested that such policies enable firms with greater consumer contact to compete on environmental quality and charge a premium. Inertia or lack of knowledge about profit opportunities may mean firms are slow to adopt them. Type 2 is the most unlikely position for companies to adopt. However, the literature identifies multiple motives for firms to adopt Type 2 policies. The first category of explanations identifies strategic reasons geared towards potential long-term economic benefits. Firms could pre-empt or shape environmental regulations if they themselves adopt such policies. Another set of explanations that can be found within sociological institutional theory and stakeholder theory, focus on non-profit objectives of firms that may or may not impact their long-term profit objectives. The institutional theory, in contrast to neo-classical economics, focuses on the impact of external institutions on the policies of firms. Institutional theory suggests that firms are not profit-maximisers, instead their policies reflect external pressures for legitimacy. Different external institutions have varying capacities to influence firms. This theory would predict that firms adopt Type 2 policies in response to pressures from key institutions and managers having little autonomy in this regard (Hoffman 1997).

Stakeholder theory suggests that firms should design policies taking into account the preferences of multiple stakeholders. CSR policies are adopted because they are the "right thing to do". Firms can be reactive, defensive, accommodating, and proactive in dealing with stakeholders. Though institutional theory and stakeholder theory correctly identify non-profit

and long-term (potential) profit reasons for adopting Type 2 policies, they inadequately explain variations in response.

Prakash defends the view that in the context of Type 2 policies, managers have autonomy to interpret the impact of external pressures on the long-term profit and non-profit objectives. Hence, intra-firm politics is important in explaining variations in the adoption of CSR policies within and across firms

The benefit of CSR to stakeholders will converge in the long term with the interests of the shareholders (Reich 1998). This is because in the long term, negative practices will impinge on profits as the firm's image may be tarnished or it may become liable to fines and taxation from e.g. pollution.

Many studies show empirically that CSR can have a positive effect on financial performance (see chapter 2) and it has been noted that in Britain market forces have promoted global corporate citizenship (Aaronson & Reeves 2002). Studies also show that the public is willing to pay a premium for products that have environmental and social attributes (Rosewicz 1990).

1.1.2.2 Image and Reputation

Most companies are concerned about their public image because this sells their products directly or indirectly to the public. Anything that tarnishes the image may result in loss of sales, permits, or subsidies (Reich, 1998). There are numerous examples of companies that have altered their image to reflect this. The oil company BP has rebranded itself as an energy company, it now invests in renewable and alternative energy and issues social and environmental reports. Its new logo is a green and yellow sun or flower (see chapter 6 for more on reputation).

Arora & Gangopadhyay (1995) describe why firms voluntarily overcomply with environmental regulation. Consumers value environmental quality but differ in their willingness to pay, which depends on their income levels. Publicly available information on environmental performance of firms enables consumers to identify clean firms. Firms participate in a two-stage duopoly game where they first choose their levels of cleaning technology and next engage in price competition. A minimum standard binding on the dirty firm has the effect of improving the performance of the cleaner firm. A subsidy obtains the same competitive outcome.

1.1.2.3 Altruism

Becker & Barro (1988) wrote a definitive article on the nature of altruism. It is no longer disputed that altruism exists, though it is still difficult to demonstrate that firms engage in it. For example, although firms donate money and services to charity, this may be altruistic, or for tax breaks, to salve their consciences, or to appeal to consumers. HSBC has promised £30 million to three environmental charities in what is said to be the biggest single charitable donation by any UK company (Anon 2002c). This donation is certainly not purely motivated by altruism, but the recipient charities will happily accept the money.

1.1.2.4 Consumer demand

Many products with CSR attributes exist because of consumer demand e.g. clearer labelling or packaging made from recyclable materials. Consumer groups and NGOs lobby government for changes in legislation, and corporations for changes in activities. Examples are numerous and include consumer and NGO pressure in 1996 on Royal Dutch Shell to change its policy towards the disposal of the Brent Spar oil platform. However, Agenda, a Scottish networking organisation for CSR has produced a report on the role consumers play in driving CSR. Their conclusion was that relatively high levels of consumer awareness of CSR related issues were not being translated into purchasing decisions. A key reason was that CSR information was not readily available to most consumers as and when they needed it (Laing, 2004)

1.1.2.5 Government policy

CSR is a key component of development, trade, investment, pension and other public policies. The British government has adopted a wide range of policy initiatives to promote CSR. Britain is proactive in CSR, but is not a leader in implementing the OECD guidelines for multinationals[1] (Aaronson & Reeves 2002). The UK is one of the few countries with a minister responsible for CSR. This minister is responsible for the implementation of the government aims to raise awareness of CSR, to use public policies to provide guidance, promote consensus on UK and international codes of practice and promote a framework for social and environmental reporting and labelling (Foreign and Commonwealth Office 2002).

[1] The Guidelines are recommendations addressed by governments to multinational enterprises operating in or from adhering countries. They provide voluntary principles and standards for responsible business conduct in a variety of areas including employment and industrial relations, human rights, environment, information disclosure, competition, taxation, and science and technology (www.oecd.org)

The Department for International Development (DFID) created a Business Partnerships Department in 1998 to foster partnerships with socially responsible firms and to improve the enabling environment for productive investment overseas. In recognition that socially responsible business could help shape globalisation and improve living and working conditions, DFID published a white paper "Eliminating world poverty: making globalisation work for the poor" (DFID 2000). The Voluntary Principles on Security and Human Rights (1999-2000) were designed by the UK and US governments to govern their operations in conflict prone countries. Companies signed the statement and agreed to report on human rights abuses:

- "Companies should record and report any credible allegations of human rights abuses by public security in their areas of operation to appropriate host government authorities. Where appropriate, Companies should urge investigation and that action be taken to prevent any recurrence.
- Companies should actively monitor the status of investigations and press for their proper resolution." (U.S. State Department 2001)

In an effort to raise labour standards through pressure on suppliers as well as competitors, the UK government also developed the Ethical Trading Initiative in 1997. This aimed to improve labour conditions around the world by encouraging the use of a set of standards, embodied in codes of conduct, as well as monitoring and auditing methods for companies to work with organisations outside the corporate sector. Members include government officials, businesses such as Safeways and Marks and Spencer, NGOs such as Oxfam, and think tanks such as the New Economics Foundation. If members don't honour their commitments under the ETI, they lose their membership. Thus the ETI uses shame rather than sanctions to induce changes to corporate behaviour.

One of the most influential actions taken by the government has been to require UK pension trustees to disclose how they take account of social, environmental and ethical factors in their investment decisions. As a result, pension funds soon started to require more information from the firms in which they invested, and this forced a greater numbers of firms to publicise information on their social and environmental performance. This in turn has led to more UK Plcs to publish formal CSR reports and to attempt triple bottom line[2] reporting.

[2] The triple bottom line is a framework for measuring and reporting corporate performance against economic, social and environmental parameters (Sustainability 2003).

Finally the UK government Department for Environment, Food and Rural Affairs (DEFRA) has issued guidelines on corporate environmental reporting.

In conclusion, governments are promoting CSR in the following ways:

- Use a range of tools from triple bottom line reporting to development of a code of conduct
- Support for the OECD guidelines
- Seek widespread public comment on these initiatives and thereby build a constituency for these efforts
- Use the web and conferences to bring these issues to public attention (Aaronson & Reeves 2002)

1.1.2.6 Economic climate

"[CSR has a] great deal to do with the preservation of the social system within which the corporation operates" (Preston 1975)

Wealthier countries can afford to be concerned with CSR because they can afford to concentrate on the attributes and quality of products rather than on quantity produced alone. However, civil society in developing countries has shown that it can lobby multinational corporations and their governments on CSR issues. Examples include intellectual property rights and genetically modified organism crops in India. These are discussed in greater detail later.

1.1.3 History

Business has had to consider its social and environmental responsibilities from the start. This section provides a brief history of CSR from the industrial revolution to present day green investment strategies.

Modern industry began in the 19th Century. Cities became overcrowded and dangerous as people flocked to them to work in the factories. At the same time as promoting business and capitalism the Victorians' obsession with morality caused them to reflect on the impact of industry on their employees. They were responsible for legislation to protect children in the workplace. They also put their new ideas on architecture, town planning, and plumbing to philanthropic use.

Robert Owen, in his experiment at New Lanark in Scotland, took over an enterprise staffed largely by "thieves and drunkards". He improved the working and living conditions of the employees and not only acquired a healthy, temperate and more industrious workforce but also increased the profits of the mill owners. He showed that it paid to be a good employer (Donnachie 2000). The village of New Lanark became a world-famous model community working water-powered cotton mills from the early 19th Century.

The village of Port Sunlight in England was similarly designed by Lever, who drew on Owen's experience and on the Garden Suburb Movement, a group intent on the improvement of cities. It strove to provide better housing but for this to be provided in aesthetically pleasing styles in leafy, sylvan surroundings. Lever and Owen were born into an era of social inequality, self-interest and free enterprise balanced by philanthropists, social reformers and self-help moralists. Lever shared his prosperity with his workers, he used the architectural creativity of the Garden Suburb Movement to create the village around his factory, the village was paid for and maintained by the company's profits. This in return created the relationship between the company and its employees: they would work hard as it was in their own interests as well as the owner's (Wilson 1954).

Following Owen and Lever were the Rochdale Pioneers and the origins of the co-operative movement. The Rochdale Equitable Pioneers' Society was founded in 1844 by a group of artisans and is regarded as the prototype of the modern co-operative society in all of its various guises. The principles, which guided the original co-operative, were:

- Democratic control: one member, one vote
- Open membership
- Limited return on capital (labour hires capital)
- Distribution of surplus in proportion to a members' contribution to the society
- Cash trading only
- Selling only pure, unadulterated goods
- Providing for the education of members in co-op principles
- Political and religious neutrality (Holyoake 1858)

Co-operatives are now found world-wide and still provide a useful model for ethical business practices.

In 1960 the Methodists started the first ethical fund. They wanted to avoid investing in companies involved in alcohol and gambling (Jacob 1996). The Quakers followed as they did not want to invest in weapons manufacture (Shepherd 2001). In the early 1970s the ICCR (Interfaith Center on Corporate Responsibility) was founded. It protested against corporate policies at AGMs by using their shareholder resolutions[3] or proxy voting[4] as tools for promoting change. One of their early causes was to avoid investment in South Africa during the years of apartheid. They also submitted resolutions on plant closures, concerned as they were of the potential social and economic consequences that the loss of thousands of jobs in one area could cause. ICCR became involved in resolutions on employment practices, this started with resolutions put forward to companies that were involved in racial and sexual discrimination cases and has since evolved to cover a wide range of employment equity areas.

Over the last 50 years the exponential increase in media coverage of global social and environmental problems has led to greater public awareness of a multitude of issues such as human rights abuses, global warming, pollution, and the working practices of multi-national organisations. This increase in awareness is in part due to the improvements in media technology: the Internet, satellite television, 24-hour news services and the globalisation of trade and culture.

[3] Shareholders are entitled to bring resolutions (which are, however, non-binding) to a vote of the shareholders as part of the company's annual meeting process

[4] Shareholder resolutions brought to the AGM through a proxy, usually a company, that votes for the shareholder in his absence.

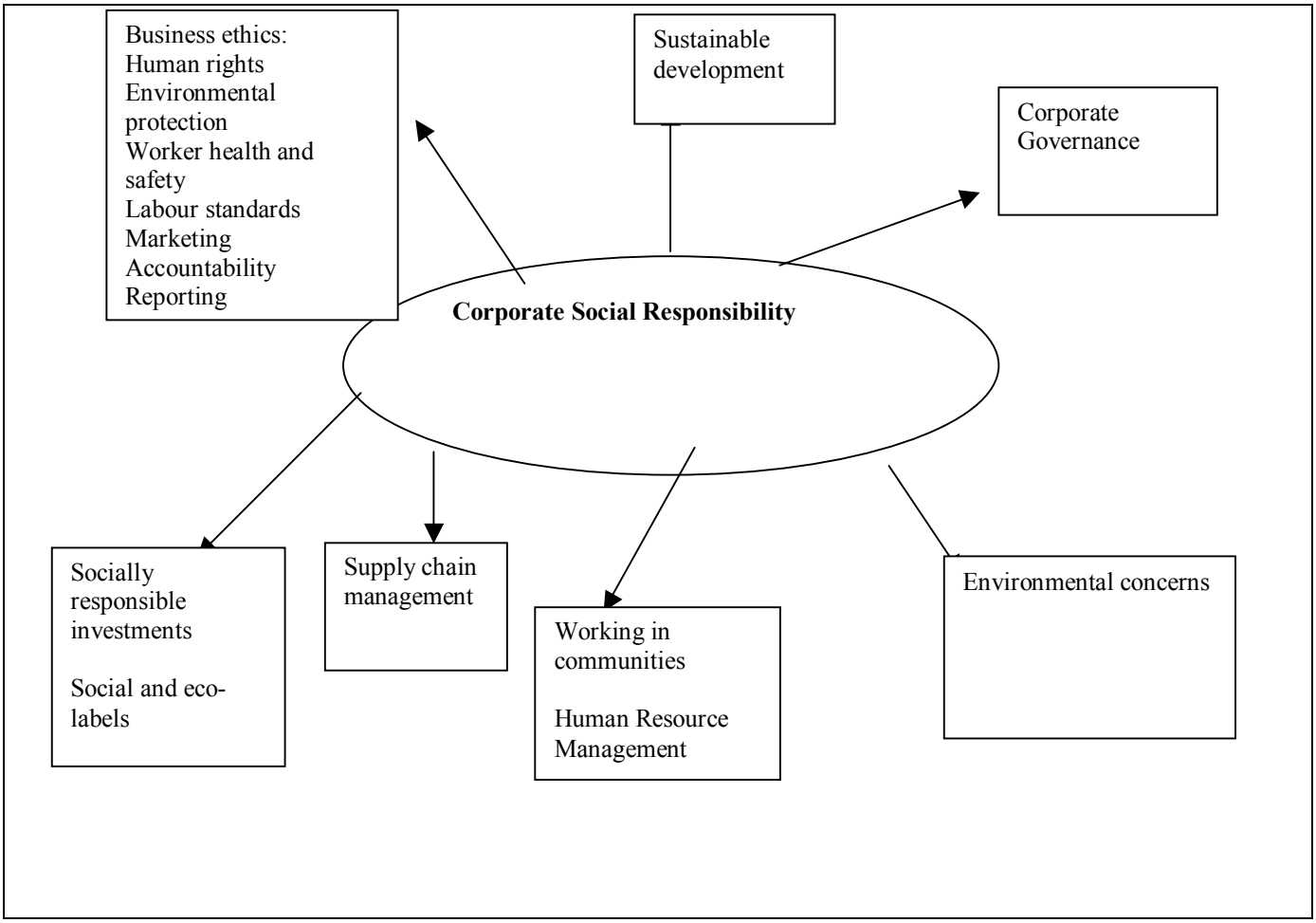
In 1968 the first photographs of the earth taken from space were revealed to the public, these had a profound effect on people. Many realised for the first time how fragile the earth's ecosystems were and how small the earth was in relation to the universe. This led to a significant environmental movement. Around this time two books were published that had an important impact on public awareness of environmental issues: "Silent Spring" (Carson 1962) about the destruction of the environment through modern agricultural practices and "Small is Beautiful" (Schumacher 1973) about the economics of big business.

Thus, the public (civil society) mobilised itself and non-governmental organisations were founded for each social and environmental issue. This included the anti nuclear movement, environmental groups, human rights campaigners and more recently anti-globalisation groups and campaigns against the building of roads and bypasses through green areas.

1.1.4 Principles

CSR embraces a range of principles or ideas, ranging from corporate governance, business ethics, and sustainable development through to human rights and environmental concerns. Figure 1 provides an overview of these many facets of CSR. They are explained more fully in this section.

Figure 1.1: Principles of corporate social responsibility



Business ethics: Ethical businesses assess the moral implications of their actions, from product development to manufacturing to distribution, in order to stay competitive. Many issues fall under the rubric of business ethics: human rights, environmental protection, worker health and safety, labour standards, marketing, accountability, and reporting. Business ethics is concerned with a compliance with internal regulations and government mandates. An ethical business will also look beyond its own ethical practices to the practices of its business partners and suppliers (see supply chain management). Business ethics is also taught as an

academic discipline to business students at undergraduate and postgraduate level (Chryssides & Kaler 1993). Ethics are used as a guide in legal or religious compliance and in accomplishing profit maximisation. It is merely one form of decision making (Hartman, 2002).

Sustainable development: for some people social responsibility is a subset of sustainable development, for others it underlines and distinguishes the social dimensions of the impacts of business and other organisations, given that sustainable development has come to imply a focus on the environment (Agenda 2001). The UK Government notes that sustainable development is about meeting four objectives at the same time. These are: social progress which recognises the needs of everyone; effective protection of the environment; prudent use of natural resources; and maintenance of high and stable levels of economic growth and employment (Performance and Innovation Unit 2001).

Corporate governance is the basis of accountability in companies, institutions and enterprises, balancing corporate economic and social goals on the one hand with community and individual aspirations on the other. The Cadbury Report (Committee on the Financial Aspects of Corporate Governance 1995) and Greenbury Committee Report (Greenbury 1995) both form the basis of the codes that govern corporate governance particularly for publicly quoted companies. Cadbury argued for a clearly accepted division of responsibilities at the head of a company to ensure a balance of power and authority, such that no individual has unfettered powers of decision. Greenbury's main points were on the remuneration of the board of directors. The Committee was set up by the Government to look into Directors' pay and benefits. It made recommendations in the form of a Code which all listed companies are recommended to follow. The Financial Reporting Council published "The Combined Code on Corporate Governance" in July 2003.

The environmental concerns of businesses can be divided into the local and the global. All businesses in the UK must comply with legislation that prevents gross pollution of water, air, and soil. Manufacturing businesses can buy permits or trade tariffs in order to be able to pollute up to a certain limit. They must also make provision for cleaning up. Businesses must also face up to global environmental concerns, they know that their activities can have wide-ranging repercussions on the environment, especially on global warming through the emission of greenhouse gases.

Working in the community: Businesses have always had some sort of relationship with the communities that live around them, usually because they recruit staff locally. Businesses

spend time and money assisting local communities in a variety of ways e.g. supporting education programmes and health awareness initiatives.

Human Resource Management: This includes recruitment and training, equal opportunities, profit sharing and share ownership schemes.

Supply chain management: Businesses engaging in corporate social responsibility review their suppliers' practices encouraging suppliers to meet the challenges of a socially responsible business if they want to continue trading with them.

Socially responsible investment (SRI): Where SRI was in the past developed for religious groups (Quakers, Catholics, Muslims), it is available in many different formats to address issues of concern to people of any faith, or none. The proliferation of socially responsible or ethical funds has led to the creation of indices of socially responsible companies e.g. FTSE4good, Dow Jones Sustainable index, Domini 400 etc.

Social and eco-labels: Surveys have shown that consumers do not only want good and safe products, but they also want to know if they are produced in a socially responsible manner. European consumers are concerned about protecting the health and safety of workers, respecting human rights, safeguarding the environment, and reducing greenhouse gases. As a response a growing number of market-based (rather than regulatory) social labels are to be found on a variety of products and services. These labels originate either from individual manufacturers or industrial sectors, NGOs and governments. Some of these labels are discussed in the next section.

1.1.5 Standards and schemes

The wide-ranging remit of CSR has led to the development of systems, standards and schemes for regulating and benchmarking businesses. Some standards will cover only one specific area of concern e.g. the environment. Other standards may cover several areas e.g. Codes of Conduct that cover the environment and employee relations. Some of these schemes are outlined below. A comparison of a selection of CSR standards has been published by Business for Social Responsibility (2000). This section reviews standards available for environmental issues, business ethics, reporting, and labelling,

1.1.5.1 Environment

Businesses wanting to reduce their impact on the environment can set up an Environmental Management System (EMS) to assist them in taking stock of their production processes and making positive changes to reduce pollution. Two systems are presented here that businesses can implement and for which they can obtain accreditation: the Eco-Management and Audit Scheme (EMAS) and ISO 14000.

The European Council adopted EMAS in 1993, allowing voluntary participation in an environmental management scheme, based on harmonised lines and principles throughout the European Union. It was originally open to companies in industrial sectors operating in the European Union and the European Economic Area (EEA). The overall objective of the scheme was to promote continuous environmental performance improvements of economic activities by committing organisations to evaluate their environmental performance and provide relevant information to the public. The scheme did not replace existing Community or national environmental legislation or technical standards nor did it remove a company's responsibility to fulfil all of its legal obligations.

The ISO 14000 family of environmental standards grew out of the commitment of the International Standards Organisation (ISO) to support the objective of sustainable development discussed at the United Nations Conference on Environment and Development, in Rio de Janeiro, in 1992. It was modelled on the ISO 9000 family of standards, which set standards for quality of management practices. There are four main steps in the development and implementation of ISO 14000 EMS: initial environmental review, planning the EMS, implementation and operation of the EMS, and certification.

1.1.5.2 Business ethics

As business becomes globalised, interest groups, governments, educational institutions, and industry associations are encouraging companies to adopt codes of conduct to demonstrate their values and business practices. Codes of conduct are formal statements of the values and business practices of a company, they may be short mission statements or longer more sophisticated documents that require compliance with articulated standards (LPA 2003).

The Social Accountability standard (SA 8000) was developed using the ISO 9000 and ISO 14000 standards as guides. Businesses implement a social management system and receive accreditation. SA 8000 was first released in 1997. It was developed under the auspices of the Council on Economic Priorities Accreditation Agency (CEPAA) in the USA by a diverse group of organisations, which included labour unions, human rights organisations, academia, retailers, manufacturers, contractors, as well as consulting, accounting, and certification firms. SA 8000 was designed to be the first auditable international standard for companies seeking to guarantee the basic rights of workers. It was based on 12 International Labour Organisation (ILO) conventions, the United Nation's Universal Declaration of Human Rights, and the UN Convention on the Rights of the Child. The standard addresses nine essential areas where companies must comply with relevant local legislation and with SA 8000's own provisions. These include child labour, forced labour, health and safety, freedom of association, freedom from discrimination, disciplinary practices, work hours, compensation, and management practices. SA 8000 also requires substantial 'transparency,' i.e., public reporting on the part of the business.

Another accountability standard developed by the Institute of Social and Ethical Accountability in the UK is called the AA1000 which aims to improve accountability by a process of learning through stakeholder engagement. The Institute sees this as the path to sustainable development. Securing meaningful accountability requires innovative approaches to social and environmental challenges that often go beyond necessary compliance with the rule of law. For organisations, this means responding to the interests of their many stakeholders, including those with little or no authority, but great need. This is true for all organisations, from large corporations to governments and small community groups. Meaningful accountability is hard to achieve as organisations are faced with many pressures. Stakeholders' demands are high, and often conflict with each other.

The UN Global Compact was launched in 2000. It is "*a value-based platform designed to help build social and environmental pillars required to sustain the new global economy and*

make globalisation work for all". The Compact encompasses nine principles, drawn from the Universal Declaration of Human Rights, the ILO's Fundamental Principles on Rights at Work and the Rio Principles on Environment and Development. It asks companies to act on these principles in their own corporate domains (UN 2003).

Finally, the Reverend Leon H. Sullivan elaborated the Global Sullivan Principles of Social Responsibility in 1999. The vision of the Principles is that business works with the community to advance social responsibility and a culture of peace. Endorsers of the Principles report their activities in a specific format (Global Sullivan Principles 2003).

Business for Social Responsibility (USA) has compiled a comparative summary of the key CSR-related standards. These include the Asia Pacific Economic Co-operation (APEC) code of business conduct, the Caux Round Table Principles for Business, the Global Reporting Initiative, Sullivan Principles, OECD Guidelines for Multinational Enterprises, Principles for Global Corporate Responsibility, SA8000 and the UN Global Compact (Business for Social Responsibility 2000).

1.1.5.3 Reporting

Most businesses are bound to report their financial accounts once a year and give a summary of their activities to their stakeholders. Recently companies have started to report on their environmental and social activities. This is known as social and environmental reporting. Several standards have been developed for reporting, for example, the Global Reporting Initiative (GRI).

The GRI was established in 1997 with the mission of developing globally applicable guidelines for reporting on the economic, environmental, and social performance of corporations. Convened by the Coalition for Environmentally Responsible Economies in partnership with the United Nations Environment Programme (UNEP), the GRI incorporates the active participation of corporations, NGOs, accountancy organisations, business associations, and other stakeholders from around the world (Global Reporting Initiative 2002).

The European Commission's recommendation on the recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of companies is expected to contribute to the development of meaningful and comparable information with regard to environmental issues in the EU (European Commission 2001).

In the meantime, companies are producing ever more elaborate and glossy social and environmental reports that are difficult to compare one with another.

1.1.5.4 Social and eco-labels

The European Union's Eco-label, a flower, is awarded to products and services with reduced environmental impacts. Criteria are established for individual product groups, such as paper products, textiles, detergents, paints and appliances such as refrigerators or dishwashers. When consumers see products with the eco-label, they know that these products have been carefully assessed and have been found to make less of an environmental impact than other similar competing products (European Union, 2003) (or those products with sometimes misleading environmental claims on them).

The Investors in People (UK) award, is a social label. The award signals to the company's stakeholders that it has achieved a certain level of human resource management.

1.1.5.5 Unregulated CSR

Organised groups regulate the schemes and standards outlined above. However, there are a number of activities that businesses can engage in that are considered to be demonstrative of CSR and that are unregulated and do not lead to certification or to the adoption of a label or logo. These seemingly altruistic activities include companies that engage with local communities, recruit and train staff from specific areas of high unemployment, as well as donate time, money and other resources to local communities. Examples include direct donations of money to local charities and donation of equipment for local amenities.

This kind of CSR can make companies eligible for prizes e.g. Awards for Excellence sponsored by the Department of Trade and Industry (UK), which provide companies with favourable publicity. Charitable donations benefit from tax rebates.

1.1.6 Accounting tools

There are a number of tools that have been developed to assist in understanding and reporting social responsibility. One of these is the triple bottom line approach. Another is full cost accounting, a methodology that places a monetary value on environmental and social resources in corporate green accounts (Atkinson 2000). In principle full cost accounting

provides a comprehensive framework for evaluating corporate economic activity. The definition of full costs includes costs associated with an entity's economic activity, its environmental and its social impacts.

1.1.7 Conclusion

The principles, definitions, theories and history of CSR have been discussed at length to familiarise the reader with the depth and breadth of the CSR agenda. The large number of standards and schemes available and the lack of one clear standard shows how the adoption of CSR is still in the early days. Once CSR is more established there will be fewer standards and schemes, these will be the successful ones that are adopted by the majority. The rest will either disappear completely or be subsumed into other schemes.

A company's level of engagement in CSR is increasingly important for a number of reasons: workers may base their choice of career and employer on a company's reputation and this will include its commitment to CSR. This is especially important in the UK where there is a shrinking workforce and companies must remain competitive to recruit and retain talented workers. Another reason is for risk management. Companies must remain competitive by reducing their social and environmental risks. Companies do not need to engage in CSR because their core values are ethical, green, religious, moral or other. They need to engage in CSR in order to survive in the modern world of improved communications and increasing litigation.

Corporate Social Responsibility can offer companies the opportunity to assess and improve their profile and relationships with all their stakeholders: employees, consumers, investors and society at large. It can give companies the edge, in certain areas e.g. employment, over their competitors by differentiating them in the marketplace.

1.2 CSR in the food and agriculture sector

1.2.1 Introduction

This chapter is a case study of one specific sector's experiences with CSR. The food and agriculture sector has rarely been used as case study for the application of CSR. These tend to focus on extractive and more polluting sectors such as the oil industry and mining. This chapter provides a history of CSR from farming in classical times to present day agricultural issues. This is followed by a discussion of CSR issues specific to the food and agriculture sector. Agriculture is the world's largest employer, food is needed by everyone and growing it and processing it affects people and the environment in many different ways[5].

"*When one specifically looks at the food supply chain the associated ethical issues are complex in that they don't just relate to the food safety and hygiene facets…*" (Stainer, Gully, & Stainer 1998)

1.2.2 History

Artists and writers have perceived farming as a romantic occupation since classical times:

"O farmers excessively fortunate if only they recognised their blessings" (Virgil 1990)

City dwellers perceived farming with an idealised image of food production: the farmer working in harmony with the soil, tending his livestock, stewarding the land, and cultivating healthy nutritious food. There is an abundance of traditional veterinary treatments and indigenous technologies for low-impact agriculture (Honey Bee Network 2002;Martin, Mathias, & McCorkle 2001) that attests to the fact that farmers tried to keep their land and livestock healthy and productive (and still do in extensive agriculture). However, in the early 20th century outsiders started to doubt that farmers really were looking after the land responsibly:

"*in truth the crofters concerned themselves extremely little as to how the soil was treated*" (Graham 1928)

[5] An early version of this chapter has been published in Ethical Corporation Magazine online (Martin Curran 2002) and a more detailed version in Corporate Environmental Strategy: International Journal for Sustainable Business (Martin Curran & Moran 2004).

This cast doubt on the romance of farming and called into question why farmers didn't always manage the land with future generations in mind (Hardin 1968). Carson (1962) presaged the problems of modern agriculture on the environment in Silent Spring. In the UK, it was not really until the BSE crisis and the salmonella scare in the 1980s and 1990s that the public at large became very much aware of farming and modern farming methods. These food safety issues had huge economic consequences, sales of beef, poultry and eggs dropped dramatically and showed what a liability farming could be for other sectors. This helped to boost the organic and free range market and the lobby for animal welfare. Alternative agriculture and animal welfare became two important CSR attributes of food. These are discussed in greater detail below.

In this chapter the term "corporate" is used loosely to cover all types of organisations, from farmers and small businesses to multinational corporations. Businesses in the food and agriculture sector share many of the same social and environmental issues as business in other sectors e.g. human rights, environmental protection, worker health and safety, labour standards, marketing, accountability, and reporting. There are also issues that are specific to agribusiness such as food safety and animal welfare. Each section describes an attribute of CSR in the context of the sector. Specific schemes exist for each attribute and these are described in terms of the signal they give to stakeholders.

1.2.2.1 Alternative agriculture

Several alternatives to modern intensive agriculture became popular in the twentieth century. Three of these are described in this section. Each one has a label that signals to the consumer what social and environmental attributes the product or method of production has. These methods of production can be said to be socially and environmentally responsible.

The organic farming movement started in the 1940s in Britain as both a social and environmental movement to address the problems that farming was already experiencing in the early years of intensification. The movement, which founded the Soil Association charity in 1946, has the following concerns: the loss of soil through erosion and depletion, decreased nutritional quality of intensively produced food, exploitation of animals in intensive units, impact of large intensive farming system on the countryside and wildlife. The Soil Association has since become the biggest organic certification body in the UK. Its standards cover soil fertility, pest, disease and weed control, conservation, livestock and genetically modified organisms (Soil Association 2003).

The UK Register of Organic Food Standards (UKROFS) was created in 1987. Its mission is to ensure that produce grown and sold in the United Kingdom as "organic" conforms to the standards established by UKROFS in implementing European Union legislation. UKROFS does this by accrediting, and supervising the work of, private sector organic certification bodies and by authorising the importation of organic produce from countries outside the EU. There are currently 11 bodies that are allowed to certify organic food in the UK (DEFRA 2003).

The International Federation of Organic Agriculture Movements (IFOAM) is currently working on a standard to unify the world's many accreditation bodies. Currently the UK's Soil Association is an IFOAM Accredited Certification Body and the UK's Organic Farmers and Growers body is undergoing accreditation.

The Biodynamic movement originated in 1924 in a series of lectures by the Austrian scientist and philosopher Rudolf Steiner. Biodynamic agriculture is a holistic way of approaching agriculture. Practitioners try to understand the rhythms of the sun, moon, and planets in order to plan ground preparation, sowing, cultivating and harvesting. It is however the regeneration of the forces that work through the soil to the plant, aided by enlivened compost or manure, that is the central aim of biodynamics and which is conspicuously different from other organic systems (Bate 2002). Food produced by biodynamic farmers can be marketed under a specific organic food standard called "Demeter". The Biodynamic Agricultural Association of Great Britain owns and administers the Demeter Certified Trademark in the UK and is linked with a world-wide network of independent certifying organisations under the umbrella of Demeter International. Many of the recognised organic standards are incorporated in the Demeter Standards.

Another alternative agricultural system is permaculture. Mollison, an Australian ecologist, coined the word "permaculture" in 1978. It is a contraction of "permanent agriculture" or "permanent culture". It can be defined as the use of ecology as the basis for designing integrated systems of food production, housing, appropriate technology, and community development. It is built on an ethic of caring for the earth and interacting with the environment in mutually beneficial ways (Baldwin 1989).

Food grown under permaculture is currently marketed as organic and is certified by one of the UK's organic certification bodies. However, some permaganic producers would like to establish a separate label as they feel that the organic label undersells their food. For example,

permaculture requires that there should be no more than a 50% differential between the highest and lowest earner and that 15-20% of land is set aside as a wildlife zone.

1.2.2.2 Animal Welfare

The animal welfare movement has existed for over 200 years. Laws concerning the treatment of animals were passed in many countries in the early 1800's. Numerous animal welfare societies, such as the various Societies for the Prevention of Cruelty to Animals, were also formed at that time. Until the 1960's most welfare issues related to acts of deliberate cruelty or abject neglect. In the case of farm animals, the most significant legislation addressed humane slaughter and long distance transportation. Although some systems of intensive animal production had been in existence for over a century, there was a rapid increase in the use of such methods following World War II. This widespread adoption of intensive methods gave rise to a book that would have a profound effect on farm animal welfare concerns.

In "Animal Machines", Harrison (1964) criticised the intensive animal production systems developing in the United Kingdom. These included the use of antibiotics, intensive feeding programs, indoor animal production and space restriction. As a result of this publication, the British government commissioned an enquiry into intensive animal production, generally referred to as the Brambell Report. The report made a number of very significant contributions to the issue of farm animal welfare. It included the concept of mental well-being, as well as physical, in its description of welfare. In addressing the crowding and degree of confinement to which Harrison objected, the report concluded that animals:

"*should be able, without difficulty, to stand up, lie down, turn around, stretch their limbs and interact with others*" (Brambell 1965).

The report also identified most of the concepts that were later incorporated into the Five Freedoms of Animal Welfare by the Farm Animal Welfare Council, whose establishment was recommended by the report. The five freedoms are: freedom from hunger and thirst, from discomfort, from pain, injury and disease, from fear and distress and freedom to express normal behaviour (FAWC 2001)

Since the 1960s, many NGOs have taken up the cause of farm animal welfare all over the world (e.g. Compassion in World Farming established in 1967). In the UK the Royal Society for the Prevention of Cruelty to Animals (RSPCA) launched a food label "Freedom Foods" which certifies farms that meet the welfare standards set out by the RSPCA and which are

based on the Five Freedoms. The organic schemes and the Quality Assurance schemes also subscribe to animal welfare standards.

1.2.3 Environmental Protection and Sustainable Development

Farming impacts on the environment in a variety of ways. Pesticides, herbicides, fertilisers and animal slurry affect the quality of the soil and can get into the water supply causing excessive plant growth. Chemical pesticides also affect biodiversity, killing insects thus in turn possibly affecting bird and mammal populations. Larger fields are easier to harvest than smaller ones: over the last 50 years Britain's hedgerows have depleted by 50% (RSPB 2002) leading to the demise of many plant and bird species.

The effect of genetically modified organisms (GMOs) on the environment is not yet fully understood. There are a number of potential environmental risks: gene flow, emergence of new forms of resistance and secondary pest and weed problems, recombination of viruses and bacteria to produce new pathogens, direct and indirect effects of novel toxins, and changes to farm practices leading to changes in biodiversity. There are also potential human health risks: allergenic and immune system reactions to new substances, and antibiotic resistance (Pretty 2001).

The Integrated Pollution Prevention and Control (IPPC) Directive issued by the Council of the European Union in 1996 aims to minimise pollution throughout the European Union (Environment Agency 2001). The Environment Agency also publishes guidance for the food and drink sector, farmers, slaughterhouses and animal by-products (Environment Agency 2001).

Sustainability has become a buzzword in a wide variety of areas, not least agriculture. The Food and Agriculture Organisation of the UN (FAO), is encouraging sustainable agriculture and rural development. This is part of a long-term strategy for increasing food production and food security while conserving and managing natural resources. The aim is to meet the needs of both present and future generations by promoting development that does not degrade the environment and is technically appropriate, economically viable and socially acceptable (Food and Agriculture Organization 2002). Corporate social responsibility does not just lie with profit making institutions but also with the non-profit sector such as the FAO.

1.2.4 Health, Safety and Labour Standards

Farm workers spent years working with pesticides with little understanding of how dangerous they were. Many still suffer the long-term side effects of working with toxic chemicals without using protective clothing. Research has shown that prolonged contact with many farm chemicals can lead to skin complaints, respiratory problems and depression (Saphir 1998). It was the responsibility of the manufacturers to signal clearly the dangers of their products and to provide information on how to administer their products safely. However, it took legislation and litigation to get such companies to take on their responsibilities.

In the UK farm wages are regulated by law and managed by the Department for Trade and Industry. An American NGO reported that children and adults were repeatedly exploited in the agriculture sector in the US. They rarely made the minimum wage, were paid "per piece" and commonly worked 12 hour days (Billenness 2002;Human Rights Watch 2000). The agriculture sector is the largest employer in the world and routinely makes use of child labour. Companies that purchase agricultural commodities in developing countries are now starting to understand their supply chain, to manage the labour and to comply with International Labour Organisation (ILO) standards and voluntary codes such as the Better Banana Project and Fair Trade.

1.2.5 Working in communities

Corporate social responsibility is often equated with a business's interaction in the local community, the modern take on philanthropy. Supermarkets and food manufacturers have scored highly in this category, they are able to make use of their brand for cause related marketing. Examples include Walkers Snacks "Free Books for Schools", Asda's "Tickled Pink Campaign" for Breast Cancer care and Iceland Foods "Rocking Horse Appeal" for Alder Hey Hospital. These campaigns have raised huge amounts of money for charity as well as raising the profile of the company concerned.

The Fair Trade movement extends the idea of community and stakeholders to the source. Fair Trade guarantees small farmers in developing countries a fair price for their produce. The label identifies the product to the consumer. The Fair Trade Labelling Organisation International (FLO) keeps a register of producers who meet the fair trade criteria. These are distributed to the fair trade importers, and the traders authorised to participate in the scheme such as the Fair Trade Foundation in the UK. Companies can gain a business advantage by opting into the fair trade system as it guarantees a niche market, a label and a premium price.

1.2.6 Supply Chain Management and Traceability

Companies that engage in corporate social responsibility are only as environmentally and socially responsible as their suppliers. Supermarkets have set up sourcing policies with their suppliers in order to guarantee the integrity of the supply chain.

A particular aspect of the supply chain is the ability to trace products through the supply chain and back to their site of production. This is of particular importance when issues of food safety and public health are at stake. In the UK, beef must by law be traceable through the food chain. Genetically modified organisms must also be traceable according to EU directives (Council of the European Union 2003).

1.2.7 Food Safety

Food safety is mandatory in the UK and is the responsibility of the Food Standards Agency. There is also EU legislation requiring food to conform to EU standards. Codes of practice exist to assist food producers to reach legal levels of food safety. The Global Food Safety Initiative is a network of food safety experts from retail companies and their trade associations. Its objectives are to establish criteria for global food safety standards for suppliers and supplier audits, to develop rapid alert systems, to encourage government co-operation, and to promote consumer education (Sterns, Codron, & Reardon 2001). For example, companies may overcomply with the law in their food safety initiatives by initiating recalls of products that have been mislabelled but are not actually dangerous for consumption. This would be considered as socially responsible behaviour or perhaps as marketing and branding awareness.

1.2.8 Property Rights

There are two issues that fall into the category of property rights: land rights and intellectual property rights (IPR). The land rights of farmers in developing countries are not always clear. Farmers may not hold the deeds to the land that they have always farmed, they may be tenant farmers or farming common land. Laws of inheritance can also diminish the value of the land: where it must be divided between children, at each generation the individual plot of land becoming smaller and less productive.

IPR can be used to either protect or damage farmers' freedom to plant crops. Biotechnology firms have patented entire species, single genes, and gene manipulation techniques without indigenous peoples' consent. Farmer groups have challenged some of these patents. For example in 1993 two US scientists filed patents for the use of turmeric for wound treatment. The patent was overturned when references on the use of turmeric in ancient texts showed that there was no novelty in the patent (Anon 1999).

1.2.9 Standards and Schemes

There are a large number of voluntary national and international standards and schemes that are open to the food and agriculture sector. These are described in this section.

1.2.9.1 Quality Assurance Schemes

Changing consumer demand, increased public regulation, and food safety scares have led to an increase in concerns of a broad spectrum of food quality attributes. As a result a great number of food quality standards and quality assurance systems have emerged. Government, private standards associations, industry groups, NGOs and individual firms have been instrumental in achieving this result (Sterns, Codron, & Reardon 2001). The purpose of the schemes is to provide an independent verification of the standards of food production to the retailer and the consumer. The retailer can thus have an assurance for his supply chain and the consumer can be assured that the food has been produced to a certain standard of welfare, environment, and quality. The problem is that the proliferation of these schemes has led to confusion and has added costs for both producers and retailers.

A summary of food quality assurance schemes for the UK as they stood in 2003 is provided in Table 1.1.

Table 1.1: Quality assurance schemes in the UK

Name of scheme	Foods covered	Scheme initiated by:	Attributes managed
Assured Food Standards (England and Wales) Also known as the "Little Red Tractor"	Cereals, oilseeds, pulses Fruit, vegetables, salads Beef Lamb Chicken Pork Dairy	Assured Combinable Crops Farm Assured British Beef and Lamb Farm Assured Welsh Lamb Assured Chicken Production Assured British Pigs	Animal welfare, animal movements to housing, feed, animal health and the environment. Beef and lamb carrying this label have been reared following the five freedoms welfare code
British Farm Standards		National Dairy Farm Assured Scheme Assured Produce Meat & Livestock Commission. National Farmer's Union Northern Ireland Farm Quality Assurance Scheme AFS is supported by contributions from the participating schemes and by DEFRA	
British Turkey Quality Standard	Turkey	British Turkey Information Service	200 individual quality criteria covering all aspects of rearing and production. Particular attention is paid to food safety, traceability (tracking back through the

			supply chain to source) and bird welfare. The Standard covers turkey production from the sourcing of breeding stock to all aspects of rearing including stockman competancy, housing, husbandry, nutrition and hygiene right up to final processing
Laid in Britain	Eggs	Egg Producers Association	
Lion Quality Mark	Eggs	British Egg Industry Council members are: British Egg Association (BEA) British Egg Products Association British Free Range Egg Producers' Association (BFREPA) National Egg Marketing Association Limited (NEMAL) National Farmers Union of England and Wales (NFU) National Farmers Union of Scotland Northern Ireland Poultry Breeders and Hatcheries Association Pullet Hatcheries Association Pullet Rearers Association (PRA)	Lion Quality Code of Practice: The Code covers all aspects of production from farm to retail including welfare and hygiene. New measures in the Lion Quality Code of Practice include: Vaccination of laying hens against Salmonella enteritidis, Registration and traceability of laying hens and eggs Controls on storage time and temperature including a 21 day best before date on the shell and packaging

		Scottish Egg Producer Retailers Association (SEPRA) Ulster Farmers Union (UFU)	
Quality Meat Scotland (Formerly Scottish Quality Beef and Lamb Association (SQBLA)) Incorporates the Guild of Scotch Quality Meat Suppliers Scottish Pig Industry (SPII) Scheme Standard	Specially Selected Scotch Beef Lamb Pork	Quality Meat Scotland (QMS) is a partnership of: the National Farmers Union of Scotland (NFUS) the Scottish Association of Meat Wholesalers (SAMW) Meat and Livestock Commission (MLC).	QMS is developing a Specially Selected Scotch Haulier Assurance scheme. Product Certification of Cattle and Sheep in accordance with Farm Assurance Manual. Verification of beef labelling covering geographical location, breed, sex/age of beef cattle, farm welfare and post slaughter SFQC. Procedure Manual and EU Regulation abattoirs who use stock from Farm Assured sources or via auction markets participating in the QMS Market Assurance Scheme
Scottish quality cereals	Cereals, oilseeds, pulses	SQC members are: National Farmers Union of Scotland United Kingdom Agricultural Supply Trade Association (Scottish Council) Scottish Flour Millers Association Scottish Agricultural Organisation Society	Product Certification of Cereals in accordance with SQC Farm Assurance Manual

		Maltsters Association of Great Britain The Scotch Whisky Association The Malt Distillers Association of Scotland The Scottish Agricultural College.	
Scottish Quality Salmon Includes: Salmon Smolts Scottish Quality Farmed Salmon Smoked Scottish Quality Salmon	Salmon	Scottish Quality Salmon's membership currently represents around 65% of the tonnage produced by the Scottish salmon farming industry from feed companies through to salmon smokers and processors – the whole production chain	Certification by third party: Food Certification Scotland
Scottish Quality Trout	Trout	Scottish trout producers	Farmed and Processed in accordance with SQT Standards
Shetland Seafood Quality Control	Salmon	Shetland Smokehouse	Product Certification of Superior Quality Shetland Salmon (Farmed and Processed) in accordance with Standards Manual
'Golden Promise'	Turkey	Traditional Farm Fresh Turkey Association (TFTA)	Traditional Farmfresh became the first UK product to receive protected status under EU food law as a Certificate of Specific Character (CSC) Traditional free range

1.3 Food and drink in the CSR literature

Glass (2002) provides an overview of the food and agriculture sector's corporate social responsibility issues. She notes that the agriculture sector is the largest employer in the world and one of the most dangerous sectors with a high incidence of child and forced labour and environmental hazards. In the USA, several reports highlight the poor health and safety record of the agricultural sector and note examples of industrial accidents, poor rates of pay, as well as an important lack of insurance, holidays and opportunity to join unions (Alpern 2001;Billenness 2002;Human Rights Watch 2000;Schlosser 2001). The companies' responses to these issues often include the engagement with environmental, human rights, and development organisations to implement, monitor and certify their compliance with voluntary codes of conduct.

A number of international reports and initiatives have described the relationship between CSR and food, drink and agriculture industry. In 2001, a German research firm published a study on the social and environmental performance of international food corporations (Werner 2001). It applied its Corporate Responsibility Rating scoring system to 18 companies. Scores ranged from A+ to D-. The highest overall score in the survey was C+. This low score, researchers suggest leaves considerable room for improvement in all areas of CSR. In 2002, another study published by a ratings company, assessed the relationship between energy efficiency and investor returns in the retail food sector. They found that the most energy efficient companies (subscribing to the US Energy Star rating) had significantly higher returns than less efficient firms (Innovest 2002). In 2003, Innovest released a report on global food companies. It stated that "sustainability leaders" in the food products sector out-performed substantially their industry competitors over a three year period. It cited GMOs and the potential growth in litigation over health issues and food as the two areas with the most potential for financial and reputational repercussions over the coming years (Innovest 2003). This suggests that companies proactive in CSR may be in a position to protect themselves financially from repercussions associated with food litigation. The Sarasin bank in Switzerland commissioned a report on the sustainability of the food industry (Fawer-Wasser, Butz, & Vaterlaus-Rieder 2001). Oxera, an environmental consultancy, analysed the quality of environmental reporting in the food and retail sector. Of the 10 companies in the sector they surveyed, only half produced an environmental or social report (Oxera 2000).

The Confederation of the Food and Drink Industries of the EU prepared a report on the food and drink industry's role in sustainable development ahead of the UN World Summit on Sustainable Development held in Johannesburg in 2002 (Confédération des Industries Agro-Alimentaires 2002). The report outlines the three dimensions of sustainable development (economic, environmental and social). It discusses the tools for implementation (environmental management systems, life cycle analysis, environmental performance indicators, quality management systems, etc) and the future challenges for the sector: ensuring the quality, safety, and availability of food, improving resource management, promoting sustainable agriculture and trade policies.

Amnesty International and The Prince of Wales International Business Leaders Forum (IBLF) have collaborated to produce a series of seven detailed world maps, which depict where human rights abuses and violations exist and where leading North American and European multinational companies are at risk of being associated with them. The series of maps includes one that details where food and beverage companies' operate (Amnesty International & Prince of Wales International Business Leaders Forum 2002). Issues covered include forced child labour, links with armed groups, impact on health, living wage, and freedom of association. A number of international initiatives and standards are mentioned as examples of good practice: International Code of Marketing of Breast-Milk Substitutes, the Harkin-Engel Protocol (a timetable for the cocoa industry to comply with ILO standards), and the Tea Sourcing Partnership.

The supermarket sector is collaborating with the International Institute for Environment and Development (IIED) in its Race to the Top project. The project aims to track the social, environmental, and ethical performance of UK supermarkets and catalyses change within the UK agri-food sector and beyond. Several organisations have worked together to produce indicators of supermarket performance. The indicators will provide comparative data to track progress towards fairer and greener food. The groups of indicators cover animal welfare standards, biodiversity and landscapes, labour, regional sourcing and local development, public health, sustainability management and reporting, and terms of trade with primary producers.

Food safety is an attribute of food that is closely linked to quality. Companies have a legal and social obligation to produce safe food. They do not have a legal obligation to produce a quality product, however, they may have a social and environmental duty to offer quality. Their business success hinges on the quality of the products which they produce. Food recalls occur for two main reasons. One is a food safety issue, as a company is legally obliged to

recall products that are unsafe for consumption. The other is a labelling or quality issue. Companies may choose to recall products that have been mislabelled (even if this has no health implication) and they may recall products that do not meet their quality standard e.g. the product has not the right colour or texture, although not unsafe. The link between food safety and corporate responsibility is therefore a grey one. Food companies do have a responsibility to produce safe food as contaminated food can sicken or even kill people before steps are taken to recall. Two studies (Salin & Hooker 2001;Thomsen & McKenzie 2001) have examined the link between food recalls and financial performance, these are both event studies. In each case the share price of the companies that initiated the recalls fell immediately after the event.

There is one empirical study of the impact of corporate social performance on financial performance for the food sector in the UK. It is an investigation of the UK supermarket industry (Moore 2001). The author conducted a regression analysis on 8 supermarkets using accounting based measures. Among the social performance measures scored for were equal opportunities policy, proportion of women managers, proportion of ethnic minority managers, number of women on the board, GMO avoidance and labelling, health and safety convictions, corporate governance compliance, environmental convictions, environmental policy, environmental management systems and environmental reporting. A negative relationship was shown between social performance and contemporaneous financial performance. Financial performance deteriorated as social performance improved. However, lagged financial performance compared with overall social performance showed a positive association.

The most recent addition to the literature on food and CSR is the issue of the impact of unhealthy food on the waistline of consumers. Though it is a matter of choice for consumers to eat food with high fat, salt and sugar contents, some consumer groups and doctors are attempting to show that companies are responsible for a nation's health (Anon 2002a;Martindale 2003;Wazir 2003). PepsiCo have pledged to produce a greater range of healthy food and to cut out unhealthy oils from its products (McKay 2002), McDonald's have announced plans to launch healthy lifestyle information and more healthy choices in their menus (Anon 2003b). Kraft are to reduce their portion sizes and review the products which they sell in schools (Higgins 2003). Several investment companies have already issued briefs on obesity, related lawsuits, and the impact on company value (Insight Investment 2003).

1.3.1 Conclusion

This chapter has shown that the food and agriculture sector presents a number of specific issues pertinent to the corporate social responsibility debate. Stakeholders have addressed each of the issues and designed a range of standards and schemes for companies to opt into and to signal to consumers that they are addressing the issues. These standards provide valuable benchmarking tools for companies involved in all stages of food production and processing. They allow for differentiation within the marketplace, niche marketing, premium pricing and risk aversion. The literature on CSR and food has been growing rapidly in recent years and months as investors take on board the array and complexity of the risks facing the food sector. This area will continue to expand as issues such as GMOs and obesity capture the public, media, investors and lawyers' imaginations. Despite the array of CSR issues in the food and agriculture sector, I decided not to narrow my empirical work to food companies, but to look at the full range of companies in two indices (FTSE4Good and Calvert). This is because I realised that there was still a lot of research needed at the general level before concentrating on one sector. This does not detract from the interest of a case study on the food and agriculture sector.

2.0 A systematic review of the evidence for the relationship between CSR and financial performance

2.1 Introduction

Since the early 1970s approximately 100 papers have been published that claim to investigate the relationship between corporate social responsibility (CSR) and financial performance, and many more exist that have not been published and are only available in the grey literature[6]. The popularity of the subject is due to stakeholders' concern that companies engaging in socially and environmentally responsible practices should not be penalised financially. These papers have also generated 13 literature reviews. The aim of this chapter is to review as systematically as possible the quality of the empirical studies found among these papers[7].
There exists in the medical arena a methodology for reviewing clinical trials systematically in order to provide practitioners with unbiased evidence on the overall results of a number of trials.
"A systematic review is a scientific tool which can be used to summarise, appraise, and communicate the results and implications of otherwise unmanageable quantities of research" (Centre for Reviews and Dissemination 2001).

It is of particular value in bringing together a number of separately conducted studies, sometimes with conflicting findings, and synthesising their results.. The methodology for conducting these reviews was designed predominantly by the Cochrane Collaboration[8]. This chapter draws on these methods to bring together as many of the studies on CSR and financial performance as possible.

The objective of this review was to summarise the available research on the effects of CSR on indicators of financial performance and to assess the quality of the studies. Study design was an important factor when assessing the quality of the evidence. Cochrane reviews only permit the inclusion of randomised controlled trials. Despite using an extensive search strategy, no study with this specific design was found. This led the author to conduct a more general review in which studies of any design are included. This review is therefore not eligible to be called a Cochrane review .

[6] Grey literature is unpublished literature e.g. reports, articles, personal communications
[7] This chapter has been published in the New Academy Review (Martin Curran 2003).
[8] The Cochrane Collaboration is an international organisation that aims to help people make well-informed decisions about healthcare by preparing, maintaining and promoting the accessibility of systematic review of the effects of healthcare interventions (Martin Curran 2001).

2.2 Methods of the review

The headings used in this section are the same as those used by the Cochrane Collaboration when writing up systematic reviews (see Martin Curran and MacLehose 2002).

Inclusion Criteria

Studies. Studies are included of any design. All studies had to contain a description of the methods used.

Participants. These are publicly quoted companies, from any country in the world, quoted on any stock exchange in the world.

Interventions. Relationship between CSR proxies and financial performance. The CSR proxies could include any of the following: environmental policies, initiatives, and activities, implementation of environmental management systems, compliance with environmental standards, signatory to nationally or internationally recognised accreditation bodies or social policies, adherence with international codes, over-compliance with legal standards, winning environmental or social awards.

Studies where companies merely complied with the law were excluded.

Outcome measures. The outcome measures in the studies were the indicators of financial performance. These could be market based or accountancy based.

Search Strategy

A defined search strategy was used in an attempt to identify all relevant studies regardless of language or publication status (published, unpublished, in press and in progress). The search comprised the Social Sciences Citation Index (1981 to 4/7/2002); ABI/Inform (1999-4/7/2002); European Business ASAP (1983- July 2002); PsycINFO (1967- end June 2002); International Bibliography of the Social Sciences (BIDS) (1951-July 2002); Econlit (1969 to July 2002); as well as JSTOR (start to July 2002); AGRICOLA (start to July 2002); Digital Dissertations (1861- July 2002); and Index to Theses (1970-July 2002). The term "corporate social responsibility" was used to search and results were scanned to pick out empirical studies.

Study selection

The results of the literature search for potentially relevant studies were scanned and the full articles for all relevant studies were retrieved. The studies were assessed using an eligibility form based on the inclusion criteria for the review.

Assessment of methodological quality

The methodological quality of the studies was assessed using a pre-designed form and was assessed using the following criteria: presence of a control sample of data, clear description of study objective, outcomes, type of intervention and methods used. The criteria were classified as present, absent or unclear. The information is presented in Table 2.1.

Data extraction

The following information was extracted from the data of each of the included studies using a pre-designed form: study and year of publication, intervention, sampling methods, measurable outcomes, and results. The information is presented in Table 2.2

2.3 Results

Description of studies. Thirty-four studies met the inclusion criteria. Of these, 31 concerned US firms and 3 concerned non-US firms. CSR cannot be measured directly because of its many different aspects, therefore, indicators of pollution or of the existence of employee share ownership schemes, for example, are taken as proxies for CSR. In the 34 studies reviewed there were 18 different proxies for CSR. These included environmental and social screens (Edwards 1998;Guerard 1997;Russo & Fouts 1997;Snyder & Collins 1993). It also included the existence of employee share ownership schemes (Conte et al. 1996), environmental policies (Dowell, Hart, & Yeung 2000), environmental management systems and performance, awards, divestment of business in South Africa during apartheid (Meznar, Nigh, & Kwok 1994), and the presence of companies on a variety of indices and lists. These lists included the Fortune reputation survey (McGuire, Sundgren, & Schneeweis 1988); the Business in the Environment index (Lysuyk 2001); the Best Corporate Citizens list (Murphy & Verschoor 2002) and the Council on Economic Priorities list (Erfle & Fratantuono 1992;Pava & Krausz 1996;Shane & Spicer 1983). Negative measures were also used to denote lack of CSR. These included being fined by environmental agencies (Bosch, Woodrow, & Lee 1998;Mahapatra 1984), presence on the Toxic Release Inventory (Ameer, Feldman, & Soyka 1996;Hart & Ahuja 1996); and lawsuits (Mayer-Sommer & Roshwalb 1996;Wright et al. 1995).

Methodological quality of included studies. The methodological quality of the studies ranged from high, meeting all five criteria, to average, meeting three criteria (Table 2.1). Only eight studies used a control group. In all cases the study's objectives were clearly described. Four studies did not describe the methods used clearly. One study did not clearly describe the measure of CSR used. Four studies did not describe the outcomes clearly.

Description of study designs. The study designs were not made explicit in the majority of studies. None of the studies used a randomly controlled design. However some controlled studies were carried out. Comparisons of socially responsible firms with control group of firms from e.g. S&P 500 were carried out (Clough 1997;Edwards 1998;Luck 1998a;Luck 1998b;Mahapatra 1984;Murphy & Verschoor 2002;Pava & Krausz 1996;Snyder & Collins 1993). Event study methods were used (Bosch, Woodrow, & Lee 1998;Klassen & McLaughlin 1996;Meznar, Nigh, & Kwok 1994;Shane & Spicer 1983;Wright, Ferris, Hiller, & Kroll 1995). The Capital Asset Pricing Model (CAPM) was applied (Alexander & Buchholz 1978;Conte, Blasi, Kruse, & Jampani 1996). The most frequently used data analysis tools were multivariate analysis, regression and correlation, used among others by (Alexander & Buchholz 1978;Dowell, Hart, & Yeung 2000).

Methods of sampling. The studies reported a wide range of sampling methods. Sample sizes varied from the smallest with 7 companies to the largest with 7,297 companies. The time period of samples ranged from 2 to 22 years. The majority of the samples were not randomly generated. Samples were taken from the Fortune Corporate Reputation survey, the Wall Street Journal, the S&P 500, Compustat, the Council on Economic Priorities, the Toxic Release Inventory, the Kinder Lindberg Domini index, the Directory of Corporate Philanthropy, Jupiter Environmental Research Unit's approved list, Business in the Environment index etc. Samples eliminated non-PLCs and companies where data were missing. Most studies used existing datasets e.g. Fortune or CEP datasets, others created their own new datasets e.g. Klassen & McLaughlin (1996).

Outcomes. The outcomes of the empirical studies were measured using a variety of indicators of financial performance. These dependent variables included market-based indicators such as share price, dividend yield, and volatility (beta). There were also accountancy-based indicators and ratios: return on equity (ROE), return on capital employed (ROCE), earnings to assets ratio, sales to assets ratio, sales growth, asset growth, profit, investment value, etc.

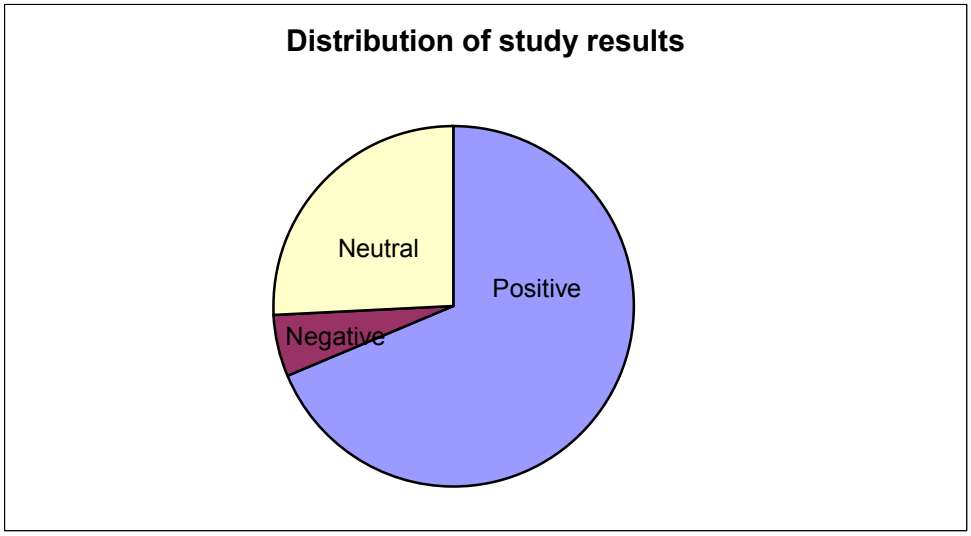
Results. The results of the studies fell into three categories: positive, negative and neutral. See figure 2.1. Twenty-four of the 34 studies (70%) were positive[9]. These showed a positive and statistically significant relationship between CSR and financial performance. Two studies (5.8%) showed a negative and statistically significant relationship between CSR and financial performance (Meznar, Nigh, & Kwok 1994;Moore 2001). Of the eight studies (23%) with neutral outcomes, some of these were genuinely neutral and others were positive results but not statistically significant (Alexander & Buchholz 1978;Bosch, Woodrow, & Lee 1998;Guerard 1997;Hart & Ahuja 1996;Heinze, Sibary, & Sikula 1999;Lysuyk 2001;Mahapatra 1984;Mayer-Sommer & Roshwalb 1996;Snyder & Collins 1993). The results are summarised in Table 2.2.

[9] (Ameer, Feldman, & Soyka 1996;Clough 1997;Cochran & Wood 1984;Conte, Blasi, Kruse, & Jampani 1996;Dowell, Hart, & Yeung 2000;Edwards 1998;Erfle & Fratantuono 1992;Griffin & Mahon 1997;Hart & Ahuja 1996;Klassen & McLaughlin 1996;Luck 1998a;McGuire, Sundgren, & Schneeweis 1988;Murphy & Verschoor 2002;Pava & Krausz 1996;Preston & O'Bannon 1997;Ruf et al. 2001;Russo & Fouts 1997;Shane & Spicer 1983;Simerly 1994;Stanwick & Stanwick 1998;Verschoor 1998;Waddock & Graves 1997;Wokutch & Spencer 1987;Wright, Ferris, Hiller, & Kroll 1995)

2.4 Discussion

Figure 2.1 provides a clear and simple view of the spread of the results. The relationship between CSR and financial performance is mostly positive, a quarter of all studies were not able to demonstrate a positive or a negative relationship (termed neutral here) and negative relationships were in the minority.

Figure 2.1: Distribution of the results of the review



Neutral results meant that there was no statistical link between CSR and financial performance.

Table 2.1 Assessment of methodological quality of studies

Study	Control group present	Study objective clearly described	Methods clearly described	Intervention clearly described	Outcomes clearly described
Alexander & Buchholz (1978)		X		X	X
Ameer, Feldman, & Soyka (1996)	X	X	X	X	X
Bosch, Woodrow, & Lee (1998)		X	X	X	X
Clough (1997)		X	X	X	X
Cochran & Wood (1984)	X	X	X	X	X
Conte, Blasi, Kruse, & Jampani (1996)	X	X	X	X	X
Dowell, Hart, & Yeung (2000)		X	X	X	X
Edwards (1998)	X	X	X	X	X
Erfle & Fratantuono (1992)		X	X	X	X
Griffin & Mahon (1997)		X	X	X	X
Guerard (1997)	X	X	X	X	X
Hart & Ahuja (1996)		X	X	X	
Heinze, Sibary, & Sikula (1999)		X	X	X	
Klassen & McLaughlin (1996)		X	X	X	X
Luck (1998)		X	X	X	X
Lysuyk (2001)		X	X	X	X
Mahapatra (1984)	X	X	?	X	X
Mayer-Sommer & Roshwalb (1996)		X	X	X	X
McGuire, Sundgren, & Schneeweis (1988)		X	X	X	X
Meznar, Nigh, & Kwok (1994)		X	X	X	X
Moore (2001)		X	X	X	
Murphy & Verschoor (2002)		X		X	X
Pava & Krausz (1996)	X	X	X	X	X
Preston & O'Bannon (1997)		X	X	X	X
Ruf, Muralidhar, Brown, Janney, & Paul (2001)		X	X	X	X
Russo & Fouts (1997)		X	X	X	X
Shane & Spicer (1983)		X	X	X	X
Simerly (1994)		X	X	X	X
Snyder & Collins (1993)	X	X	X	X	X
Stanwick & Stanwick (1998)		X	X		X
Verschoor (1998)		X	X	X	
Waddock & Graves (1997)		X	X	X	X
Wokutch & Spencer (1987)		X		X	X
Wright, Ferris, Hiller, & Kroll (1995)		X	X	X	X

Information about the methodological quality of the studies was summarised in Table 2.1 and information about the 34 studies and their eligibility for inclusion in the review was summarised in Table 2.2.

Despite the fact that some 100 papers have been written that pertain to the examination of the relationship between CSR and financial performance, only 34 were included in this review. This is because some of the papers failed to meet the eligibility criteria. They were not studies that contained methods sections, or they did not related to publicly quoted companies or the companies merely complied with the law and did not show real CSR activities. Finally, some papers were impossible to get hold of because they were unpublished and unavailable.

The methodological quality of the studies did not vary much (see Table 2.1). The five criteria for methodological quality were not weighted. All the studies were of a similar quality. This assessment of quality was not useful for differentiating studies on the basis of academic soundness. Though there were only seven studies with control groups, the majority of the studies fulfilled the other criteria of clearly describing the study objectives, the methods, the interventions and the outcomes. The reason for the low number of control groups was due to the nature of the research designs used. For example, event studies do not use control groups as such. Event studies use pre-event data to calculate "normal" returns, these are the control data. More of the multivariate studies could have had control groups. Random samples of companies from the S & P 500 or FTSE All Share Index could have been compared to the list of companies selected for the studies, or information could have been given about average returns or financial performance for the same period for indices as a whole.
Some studies did not provide clear information on sampling or design methods e.g. Verschoor (1998). The study authors used a variety of different outcome measures. This made it difficult to compare results of individual studies and impossible to conduct a meta-analysis.

CSR was measured using a wide variety of proxies, demonstrating the wide remit of CSR. Some of the measures were aggregate measures, e.g. the Fortune list which covers eight criteria (financial soundness, long-term investment value, use of corporate assets, quality of management, innovativeness, quality of products, use of corporate talent and community and environmental responsibility). Other measures were specific to one attribute of CSR, e.g. the Toxic Release Inventory which addresses toxic emissions and pollution. One of the studies was concerned with divestment of business in South Africa during apartheid (Meznar, Nigh, & Kwok 1994) . This positive gesture for human rights had negative repercussions on the

companies that divested early, but was less negative for companies that divested later. Other studies dealt with negative events such as the announcement that the Environmental Protection Agency (USA) was taking action on polluting companies (Bosch, Woodrow, & Lee 1998). These studies demonstrated that corporate irresponsibility could and would be penalised.

As well as the bias brought into the study from not being able to find literature, there is the additional "publication bias". This is because authors may choose not to publish studies that show no positive (or negative) relationship between CSR and financial performance. They may consider studies that bring back non-significant (or neutral) results to be unfit for publication. However, these studies are important too, they demonstrate the weaknesses in the methods selected, and the difficulties encountered by using a wide variety of proxies for CSR and different financial performance indicators.

2.5 Conclusion

Overall the quality of the studies was high though more scientific rigour could have been introduced by using control samples. There is room for improving the proxy measures for CSR. Some studies limit themselves by only using one measure of CSR, which does not necessarily give a holistic picture of a company's commitment to CSR. Proxies such as the Fortune Reputation list are not exclusively about CSR, they contain much information relating to a company's financial performance. Overall though, the proxies do correlate with financial performance and there is clear evidence that there is a link between CSR and financial performance. Seventy percent of the studies reviewed showed a positive and statistically significant relationship between CSR and financial performance. This surely demonstrates the financial incentive for firms to overcomply with the law, to promote environmental and social policies, and to turn these policies into positive actions. Firms can also see clear evidence for avoiding fines, litigation, and pollution as these expose them to immediate financial costs and to long-term reputation costs.

The experience of conducting this review assisted me in the formulation of my empirical work. I was particularly interested in the strong results that event studies can provide. I decided therefore to carry one out using a dataset that had not previously been used in this way (FTSE4Good Index). I was also keen to use a wide variety of market and book financial performance indicators in order to find out which of these indicators most quickly and efficiently reflects improved financial performance when dealing with a subtle change to a company's activities, as CSR.

Equally the strengths and weaknesses of the studies reviewed lie in this same area of array of CSR proxies and range of financial performance indicators. The more proxies and indicators there are to choose from, the more difficult it is to pinpoint which combination is likely to provide an accurate picture of what is going on.

2.6 Annex

Table 2.2: Description of empirical studies

Study name	Measures of CSR	Study design	Sampling methods	Measurable outcomes	Results
Alexander & Buchholz (1978)	CSR rankings taken from Vance (1975). Businessmen and students rated leading firms on their perceived degree of social responsibility	Capital Asset Pricing Model applied Correlation	Sample taken from Vance (1975)	Share price	Differential returns and risk measures of shares in the surveys were calculated for the period 1970-1974 and a sub-period 1971-1973. Few securities had differential returns significantly different from zero. There was no significant effect of CSR on stock market performance Low insignificant relationship between risk-adjusted performance and degree of CSR.
Ameer, Feldman, & Soyka (1996)	Quality of firm's environmental management system Environmental performance: average annual change in TRI per unit of firm capital.	Regression model: Betas for stocks were estimated for 2 periods, the first being "before" corporate environmental management and the second, "after".	330 companies in the S&P 500 (1988-1994)	Beta	The model was statistically significant. A 50% improvement in environmental management would lead to 8.5% reduction in firm's Beta. A 50% improvement in environmental performance would lead to 6.5% reduction in Beta.
Bosch, Woodrow, & Lee (1998)	EPA action announcements	Event study	Wall St Journal index searched from 1970-1990 for all references to EPA related announcements involving US firms. A total of 525 cases involving 244 firms found. A final sample of 171 cases and 77 firms used. Four sub-samples were created depending on whether firms cooperated or not with EPA.	Share price	Definite negative market response to the announcement that a firm has attracted the attention of the EPA. No market reaction to positive EPA announcements.
Clough (1997)	IRRC Environmental screen	Companies scored for	Companies taken from S&P	Total return of stock	No adverse impact from an

		environmental responsibility. 475 companies broken into 238 environmentally responsible ones and 237 irresponsible.	500.		environmental screen, returns slightly enhanced by the screen.
Cochran & Wood (1984)	The combined Moskowitz list see (Sturdivant & Ginter 1977)	Analysis of covariance.	For period 1970-1974 the sample contained 39 firms from 29 industries, compared to 386 firms in industry control groups. In period 1975-1979 there were 36 firms in 29 industries and 366 firms in the control groups.	Ratio of operating earnings to assets Ratio of operating earnings to sales Excess market valuation.	With operating/sales as the financial performance measure, firms with "best" ratings outperform "honourable", which in turn outperform "worst". Operating earnings/ assets measure – "honourable" firms appear slightly superior to "best" firms. Asset age and asset turnover are related with Moskowitz's CSR indicators
Conte, Blasi, Kruse, & Jampani (1996)	Employee Stock Ownership Plan (ESOP)	CAPM and regression used to analyse the returns of ESOP and non-ESOP companies on a risk-equivalent basis	Compustat database contains financial information on more than 16,000 companies, but annual market return data were available for only 9,040 companies. The authors matched the Compustat companies with the 6,119 companies that sponsored an ESOP and had 100 or more participants in the plan. The 9,040 companies were put into 2 groups. 1,743 ESOP sponsoring companies and 7,297 non-ESOP companies.	Company annual market return: Average annual market-adjusted residual returns for ESOP and non-ESOP separately for each of the years 1981-1993.	Large ESOP firms showed marginally higher returns. Returns are higher on average, for companies that sponsor an ESOP than those that do not. Higher returns prevail even after controlling for risk.
Dowell, Hart, & Yeung (2000)	MNC Firms with an environmental policy	The independent variable was derived from the IRRC's Corporate Environmental Profile. The dataset described each firm's position on international environmental policy from 1994 to 1997. Firms can score 1, 2, or 3. Where 1 is local, the corporation adheres to local	The sample firms were drawn from the S&P 500 for the period 1994-1997. Two screens were applied. Only firms involved in manufacturing or mining were selected because the main research variable, corporate environmental standards, was most salient	Tobin's Q Sum firm equity value Book value of long-term debt Net current liabilities.	Firms that do not adopt local environmental standards have higher market values. Companies adopting their own "internal environmental standard" have the highest Tobin's q values. There is a reliable positive

		standards only. 2 is US, the corporation applies US environmental standards wherever it does business 3 is stringent global, the corporation has its own internal environmental standards that exceeds any national standard. It was assumed that the lower the score, the higher the pollution level of the firm. This was confirmed by checking the Toxic Relsease Inventory Data. The following control variables were included in the regression analysis: R&D intensity, advertising intensity, leverage, and multinationality. Also firm size. Data obtained from Compustat for 1994-1997.	to these firms. Only firms with production operations in countries with GDP per capita below $8000 (1985) were included.		and significant relationship between the use of a single global environmental standard and a firm's Tobin's q. Significant and positive relationship between the market value of a company and the level of environmental standard it uses. A firm's market value appreciates quickly once a firm adopts a higher environmental standard.
Edwards (1998)	Firms approved by the Jupiter Environmental Research Unit (JERU) for the Ecology Fund.	The study examined the historical financial results from 51 companies from the approved list of JERU. These data were compared to the financial data of a number of companies whose environmental performance was unknown. Stage 1: For each company on the approved list, between 3 and 5 companies of similar profile from the same sector were identified for comparative purposes.	Companies are chosen for research purposes as potential candidates for the Approved List by JERU, companies on the List are chosen purely on their environmental merit.	ROCE ROE	Stage 1 all companies ROCE 1992-1996 Green: 24.96% Non-green: 14.38% ROE 1992-1996 Green: 13.66% Non-green: 8.6% Stage 2: best non-green (financial performance) against green company ROCE 1992-1996 Green: 24.92% Non-green: 24.69%

		Stage 2: From the set of non-green companies of similar profile identified in the first stage, the company which showed the best financial performance was selected and compared to a green company of similar profile Profile characteristics were subsector and turnover, capitalisation, capital expenditure per share and percentage of export turnover in 1995.			ROE 1992-1996 Green: 19.29% Non-green: 22.05 %
Erfle & Fratantuono (1992)	Firms rated by CEP's Shopping for a Better World (1989) using following indices: environment, women, minority, charity, community, S. Africa, animal, non-military, non-nuclear, disclosure	Correlation analysis Regression analysis	84 firms from CEP	ROA; ROI; ROE Earnings to assets ratio Sales to assets ratio Sales growth Asset growth Operating income growth Measures averaged over 5 years (1984-1988). Three financial control variables: debt to asset ratio, standard deviation of operating income, asset age (ratio of net to gross assets). Also control for industrial market segment.	Environmental performance is positively related to financial performance once controlled for risk and product market differences. Individual dimensions of social performance can be positively associated with financial performance. Weak positive relation between social disclosure and financial performance.
Griffin & Mahon (1997)	Chemical firms that disclose their activities.	A raw number for each financial and social measure is determined, each firm is ranked 5 financial measures and on 4 social measures on a scale of 1 (best) to 7 (worst). The overall averages determine the final rank of each firm in order to distinguish among high and low financial and/or social performers.	Chemical firms that have reported their discharges to the TRI, are included in the KLD index and Corporate 500 Directory of Corporate Philanthropy and evaluated by Fortune survey. 7 firms thus selected.	Size ROA ROE Asset age and 5 year return on sale.	The use of the KLD and Fortune data correlates to a positive relationship with the accounting measures used in the study. The TRI data does not relate to the perceived social performance (KLD and Fortune) or the financial performance of each company.

Guerard (1997)	Socially screened universe of stocks (in a mutual fund)	Comparison of "with and without screening" Regression	Sampling method not known, however sample is of 1300 unscreened equity stocks and 950 screened stocks	Earning to price, book value to price, cash flow to price, sales to price, dividend yield and net current asset value	No significant difference between average returns of a socially screened and unscreened universe during the period 1987-1994.
Hart & Ahuja (1996)	Emissions reduction This dataset provides a summary of the reported emissions of selected pollutants from US manufacturing facilities owned by each company. It includes an emissions efficiency index. To measure emissions reducted, the authors computed the percentage change for each firm in the emissions efficiency index from 1988 to 1989.	Multiple regression analysis The sample was split on the industry means of the emissions efficiency index for 1988, yielding high and low polluting firms within each industry. These firms were aggregated into high or low polluting subsamples.	127 companies from the S&P 500. Two screens applied in selecting firms. First, only firms involved in manufacturing, mining or production were selected. Second, as pollution intensity of industries varies widely, a minimum of 4 firms per industry was required to ensure stable and reliable industry means.	ROS ROA ROE These were collected for each firm for 1989-1992.	Reducing emissions has an effect on the operating and financial performance net of the control variables. The relationship between 1988-1989 emissions reduction and both ROS and ROA became significant in 1990, stronger in 1991 and dwindled in 1992. Relationship between emissions reduction and ROE did not become significant until 1991. Emissions reduction had no significant effect on any performance measures in 1989 The results for the split samples showed that emissions reduction had no significant effect on performance in any of the years for the low polluting subsample, but had positive significant effect on performance for high polluting subsample.
Heinze, Sibary, & Sikula (1999)	Fortune Reputation survey	The statistical analysis focused on 22 Fortune industry groups from manufacturing sector. Each group consists of the 10 largest and most admired companies in the category.	The 10 companies comprising a group are not a sample, but represent the population of the 10 "most admired (large) companies" in the specific sector.	Profits (financial soundness) and Investment Value Not clear how these are calculated	No negative correlation between CSR and financial performance measures Correlation varies between industry groups
Klassen & McLaughlin (1996)	A positive environmental event e.g. winning an environmental award. And negative events such as	Financial event methodology	The NEXIS database of newswire services was searched for positive events. Subsidiary firms only	ROE Equity market valuation Share price Shares outstanding	Market valuation of environmental awards was $80.5 million. Significant positive abnormal

	environmental crises (spills, gas leak, explosions).		included in the sample if a publicly traded parent firm wholly owned them. Sample period was 1985-1991. 110 observations in sample from 82 firms. A single newswire (United Press International) was searched for negative events (spills, leaks etc). Sample period was 1989-1990.		stock returns were documented following positive environmental events, highlighting the perceived value of strong environmental performance. Significant negative returns were documented for environmental crises, adding support for a causal link between environmental and perceived future financial performance.
Luck (1998)	The Domini Social Index versus the S&P 500	Comparison of the two indices	Rationale for selection of time period 1990-1998 not known	Index performance	DSI outperformed S&P 500 by 1.7% over the 8 years.
Lysuyk (2001)	The study uses the Business in the Environment Index of Corporate Environmental Engagement (BiE index) as an environmental performance indicator.	Three datasets were constructed: 1. Companies consistently rated by BiE for 5 years. 2. companies rated by BiE in the year 2000. 3. companies belonging to cyclical services economic group rated by BiE in 2000.	Dataset 1: derived after exclusion of companies that did not have historical financial data for 10 years or had changed as a result of merger etc. 35 companies Dataset 2: 103 companies. Dataset 3: 32 companies	Stock price return Total shareholder return Dividend yield, Jensen's Alpha	Returns on securities of high environmental performers in the UK markets are slightly lower than returns on securities of companies with lower environmental performance. Evidence is not statistically significant. There is a statistically significant negative correlation between environmental performance and stock price returns volatility. Securities of environmentally conscious companies are less volatile than securities of the companies with low environmental consciousness.
Mahapatra (1984)	Firms chosen because they were targeted by the Environmental Policy Act 1979	Controlled trial: sample of firms that carry out pollution control tested against control sample Correlation	A sample of 67 firms from 6 industries: chemicals, iron and steel, paper, petroleum refining, non-ferrous and textiles. Only firms listed on the NYSE selected, they had to	Risk (Beta)	Pollution control expenditures and high profitability are not positively associated. Expenditures for pollution control do not automatically

			be listed continuously from 1967-1978. A random sample of 60 companies was selected from COMPUSTAT and used as the control group.		lead to higher market returns or any operating cash shortage for the affected industries.
Mayer-Sommer & Roshwalb (1996)	The database for ethics measures was developed by reviewing the Lexis/Nexis and Dow JonesNews Service Database and "Defense Contract Litigation Reporter" and a report issued by the US General Accounting Office (1992). 192 incidents formed the database of violative ethical acts. Also measures of espoused ethical values: membership of Defense Industry Initiative on Business Ethics and Conduct (DII) and size of firm's PAC contributions to reelection campaigns of chairmen of committees on armed services.	Correlation	Publicly-traded US firms in the Defense Department's annual listing of 100 companies receiving the largest dollar volume of prime contract awards over $25,000 from 1988 to 1992. Total of 62 firms.	Operating Return on Defence Assets and Operating Return on Defence Investments	Companies with more violative ethical acts were more likely to be signatories of the DII and more likely to have made larger average PAC contributions. Not able to reject null hypothesis of no association between enacted ethical behaviour, espoused ethical values and financial performance.
McGuire, Sundgren, & Schneeweis (1988)	Firms featured in the Fortune Reputation survey	Correlation analysis Regression analysis	All 131 firms rated by Fortune and for which financial data was available	Risk adjusted return, or alpha and total return Market risk: beta and standard deviation of total return ROA, total assets, sales growth, asset growth and operating income growth Ratio of debts to assets, operating leverage and standard deviation of operating income	Although performance tended to predict CSR better than risk, measures of risk also explained a significant portion of the variability in CSR across firms. Firms low in CSR experience lower ROA and stock market returns than do firms high in CSR. Accounting based measures, particularly ROA proved to be better predictors of CSR than market measures.
Meznar, Nigh,	Corporate announcement of	Event study	207 US firms ceased	Share price	Announcements of

& Kwok (1994)	withdrawal from South Africa during apartheid		operating in South Africa between early 1970s and 1991. 68 announcements made in 7 newspapers.		withdrawal from South Africa are associated with significant decreases in stock value. Earlier withdrawers suffered more than late withdrawers.
Moore (2001)	Supermarkets that exhibit social performance measures	Regression analysis	Data set of 62, confounding events reduced data set to 39 Of the 11 supermarkets in the UK, 3 were excluded because of lack of data or because the company was not listed.	Growth in turnover Profitability ROCE Profit before depreciation.	Negative relationship between social performance and contemporaneous financial performance. Financial performance deteriorates as social performance improves. Lagged financial performance compared with overall social performance shows a positive association. There is a positive relationship between social performance and age and social performance and size.
Murphy & Verschoor (2002)	Business Ethics magazine: "Best Corporate Citizens"	The study compares the financial performance of 100 companies selected in 2001 with the performance of the rest of the S&P 500.	Selection based on equal weighting of 7 measures: 3 year average shareholder return and average scores on 6 social measures: company impact on customers, employees, community, environment, minorities and non-US stakeholders. Companies noted in the press as having had a recent major problem related to ethics were excluded.	One year total return, three year total return, one year sales growth, three year average annual sales growth, one year profit growth, three year average annual profit growth, net profit margins, and ROE	The study shows that overall financial performance of the 2001 Business Ethics Best Citizen companies was significantly better than that of the remaining companies in the S&P 500 index based on the 2001 Business Week ranking of total financial performance
Pava & Krausz (1996)	Firms rated by the CEP (Council on Economic Priorities) as being socially responsible	Socially-responsible firms compared to control sample matched by industry and size. The two groups are compared for two time periods 1985-1987 and 1989-	53 firms identified by the CEP as being socially-responsible (group 1). Group 2 is matched by size and industry – sampling method unknown.	market return, price to earning ratio, market value to book value, ROA, ROE, earnings per share. Risk measures: current ratio,	Little evidence that CSR screened firms can be characterised as inferior investments relative to non-CSR firms. Among market based

		1991.		quick ratio, debt to equity ratio, interest coverage, Altman's Z-score, market beta.	measures, the most consistent results related to market value to book value ratios. This relates the market capitalisation of the firm to the accounting valuations. From 1987 to 1991 the CSR group had a higher ratio each year. Among accounting based measures, CSR firms outperformed non-CSR, but the statistical significance was low. Risk based measures: CSR firms less risky CSR firms performed well with firm-specific characteristics
Preston & O'Bannon (1997)	CSR measured using the Fortune Reputation survey. Three measures used: community and environmental responsibility, ability to select and retain good people, quality of products and services	Correlation	67 companies that have been rated in every survey over the period 1982 to 1992	ROA ROE ROI	Out of 270 correlations, all evidence suggests positive association between social and financial performance in the large US corporations. This is independent of the financial performance measure used. Financial performance either precedes or is contemporaneous with social performance.
Ruf, Muralidhar, Brown, Janney, & Paul (2001)	Change in CSR using aggregate measure of CSR and the KLD database	Separate regressions for each financial variable and for 4 time periods.	A sample of 496 firms resulted from matching the firms on KLD's database and on Compustat.	ROE Return on Sales	Changes in ROE were not related to change in CSR. Changes in return on sales is significant and positively related to change in CSR in year 3 and year 0.
Russo & Fouts (1997)	Environmental ratings were based on the scores given to the sample firms by the Franklin Research and Development Corporation (FRDC).	Least squares regression used.	The authors began with the group of firms assigned environmental ratings by the FRDC. This set of 477 firms spans all industries. Data drawn for 1991 and 1992	ROA	Results indicate that it "pays to be green", and that the relationship strengthens as industry growth increases. The industry context facing a firm is a key determinant of

			because 1991 was first year of ratings. Firms were eliminated if data was missing, the final sample size was 243.		the effect of environmental performance on financial profitability.
Shane & Spicer (1983)	Release and publication of corporate social performance information produced outside the firm. CEP's 8 major studies of the pollution control records and costs of abatement of companies in 4 industries in the USA.	Event study	8 studies by CEP. Firms included in both initial and follow-up reports were included.	Share price	CEP firms experienced on average relatively large negative abnormal returns on the two days immediately prior to newspaper reports on the release of the CEP studies. Returns for companies with low pollution-control performance rankings were found to have significantly more negative returns than companies with high rankings on the day the newspaper reports were published.
Simerly (1994)	Fortune Reputation survey	Multivariate analysis of variance	Data collected for 6 industries in Fortune 500, 5 year data. A set of 110 firms representing 84% of all the Fortune 500 firms within these industries was produced from available data. Two time periods.	Earnings per share, share price, market value, profit/equity, sales/equity, ROI, sales rate	High CSR firms had higher reported means for the measures earnings per share and share price in both time periods, and the decline was less for this group than for the low CSR firms. The market value measure increased for high CSR firms across the two time periods. Financial measures produced mixed results. Return on investment was significant in first period, but not second. Profit/equity and Sales/equity the same. Sales rate significant for both periods. The means declined during the second period, but less for high CSR firms. Size did not affect the data. The results support a significant relationship

					between CSR and financial performance.
Snyder & Collins (1993)	Construction of an environmentally screened portfolio	Control group of non-screened portfolio	The study universe was the S&P 500 as defined at beginning of each year starting in 1971. 22 years covered	Share price	Screened portfolio outperformed non-screened, but not significantly. A benchmark was created. Each portfolio tracked its benchmark closely. This showed no penalty for the environmental screen.
Stanwick & Stanwick (1998)	Fortune Reputation survey	Correlation analysis Regression analysis	Firms listed in the Fortune Reputation Index, the Toxic Release Inventory Report, information available about firm's profitability and sales from Fortune 500 listing from 1987 to 1992. These criteria resulted in the selection of 111 firms in 1987; 102 firms in 1988; 120 firms in 1989; 125 firms in 1990; 118 firms in 1991; 121 firms in 1992.	Profitability	Significant positive correlation between corporate social performance and profitability for all six years of the study. Significant inverse relationship between corporate social performance and pollution emissions in 1987 and a significant positive relationship between corporate social performance and sales in 1988, 1989 and 1990. In 1988, 1991, 1992, the regression analysis demonstrated the positive relationship between corporate social performance and sales and profitability. The 1989 sample highlighted the positive relationship between profitability and corporate social performance.
Verschoor (1998)	Annual reports contain disclosures on internal control, ethical corporate culture	Not known	Largest 500 publicly held US corporations in terms of sales or revenue as reported in the 1996 Business Week 1000.	Financial performance rank in Business Week: one year total return, three year total return, one year sales growth, three year average annual sales growth, one year profit growth, three year average annual profit growth, net profit margins,	Financial performance of companies with a stated commitment to ethical behaviour is higher by a statistically significant amount when compared with the mean rank of companies that either published no management report or make

				and ROE	no reference to ethics.
Waddock & Graves (1997)	Fortune Reputation survey used for perceived quality of management. KLD ratings measure performance (CSR).	KLD and Fortune databases were merged by year and by firm so that each observation uses KLD and Fortune data from the same year. Outliers were removed. Final dataset of 812 observations. Regression analysis.	Observations from 281 companies that are in both KLD and Fortune datasets.	10 year compounded total return to shareholders, ROA, ROE.	This study is different from the others because it does not correlate financial performance and CSR. It correlates quality of management (including financial performance) against CSR. Among stakeholder variables, treatment of owners (measured by financial performance), employee relations, community relations, and product-customer relations are significantly and positively related to management quality. Community relations, is only marginally significant. Ecological environment is not signficantly related to the quality of management score. Results strongly support hypothesis that perceived quality of management can be explained by performance with respect to primary stakeholders.
Wokutch & Spencer (1987)	Fortune Reputation survey based on 8 attributes. Crime data from issues of Trade Cases from 1980-1983 Corporate philanthropy data from The Directory of Corporate Philanthropy 1982-1984	Anova for comparison of crimes and philanthropy.	130 manufacturing firms selected from Fortune survey	ROA and Return on Sales for 1978-1982	44 of the 130 organisations committed at least one crime in the 5 yr period. 19 companies did not donate, so were deleted from sample. Philanthropy ratios calculated for 111 firms (contribution as percentage of sales). ROA and ROS significantly lower for sinners (crimes/low contributions) than for other groups. ROA lower for repeat

					offenders than for one off crime firms.
Wright, Ferris, Hiller, & Kroll (1995)	US Department of Labor awards Announcement of firms guilty of discriminatory practices	Event study	Sample drawn from list of award winners 1986-1992. Sample of 34 firms. Negative event sample drawn from Wall Street Journal Index and Dow Jones News Retrieval Service. 35 firms for 1986-1992.	Share price	Announcements of quality affirmative action programmes are associated with significant and positive excess returns that represent capitalisation of positive information. Negative events are associated with significant negative stock price changes

3.0 Impact of the FTSE4Good Index on firm price: an event study[10]

3.1 Introduction

This chapter investigates the effect of CSR related information on the share price of a set of companies. This type of study is known as an event study. Event studies are a useful method for assessing the financial impact of new information on a firm's share price. The method rests on the notion of market efficiency. Given the semi-strong form of market efficiency any new information will quickly affect the share prices of affected firms (MacKinlay 1997;Wilson & Featherstone 2002).

The CSR related information used in this study are the announcements of the constituents of the FTSE4Good UK 50 index. This index was designed to facilitate investment in socially responsible companies (FTSE 2001).

An event study shows the effect of news stories or events on share price, it reflects how the market, analysts, and investors react to good news and bad news about specific companies. A company's generally dips when there is bad news about it, and rises when there is a good news story about it in the press. Usually the rise or fall in the share price will steady again within hours or days depending on the gravity of the story. There is generally no long term effect of the story unless it is really bad news e.g. a company is going into liquidation or bankruptcy.

The reason for conducting an event study here is to gauge the interest of the market in CSR-related stories and to gauge the importance attached to the implications for companies of being included (or deleted) in the index. Being included in the FTSE4Good Index may affect share price positively because it is a signal to the investment community that the company has demonstrated a level of social and environmental commitment and activities that make it a good long-term proposition. I.e. the company is less likely to incur fines, penalties and lawsuits as a result of poor environmental and social behaviour. It will have more resources available for operations rather than for litigation and spin, therefore the bottom line can be affected. Also there is a known link between CSR and good management. The companies included in the FTSE4Good are therefore also demonstrating that they are well managed firms which make them attractive investments (McWilliams and Siegel 1997). By the same

[10] This chapter has been submitted to the Journal of Environmental Management and is under review (2005).

token, a company that is not included in the index and is of a similar size and in the same sector as another company that was included may suffer a dip in share price. Investors would have expected this company to be included and when they realised it was not, would have penalised it, assuming that it was not included because it had failed to meet the entry requirements and therefore was a riskier proposition than its included peers. Companies that initially are included in the index and then are subsequently deleted are also expected to suffer a dip in share price. It is assumed that a company being deleted from the index has committed some environmental or social transgression that makes it longer eligible for inclusion. This transgression will show up as a dip in share price as investors consider it to be at risk of fines, penalties or litigation, which all incur costs to the company and affect investor confidence and the bottom line.

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3.2 Background

Stakeholder theory suggests that most corporate decisions involve a trade-off between delivery of shareholder value and benefit to other stakeholders (Freeman 1984). This relationship has led some researchers to infer that for publicly quoted companies the impact of both positive and negative managerial decisions can be estimated by examining their effect on share prices. Though analysts have typically focused on financial indicators, growing stakeholder demand for disclosure on environmental performance has led to the development of satellite indices for ranking corporate activity in this sphere. In the UK the best known of these is the FTSE4Good, a high profile share price listing that simultaneously signals environmental and social performance. Other indices of a similar nature include the Dow Jones Sustainability Indices launched in 1999[11].

Event studies are used in accounting and finance research as well as in law and economics to measure the impact on the value of a firm of a change in the regulatory environment or of a legal liability case in order to assess damage to the firm. The most successful applications of event studies have been in the area of corporate finance. Event studies dominate the empirical research in this area.

Event studies have been used previously by researchers to assess the impact of CSR-related news stories on share price. Examples from the literature are outlined below.

[11] www.sustainability-indexes.com

Wright, Ferris, Hiller, & Kroll (1995) and Klassen & McLaughlin (1996) conducted event studies that examined the impact of positive and negative CSR announcements in the same study, which is what this chapter intends to do. Wright *et al*'s positive announcements consisted of US Department of Labour awards for exemplary affirmative action programmes. The negative announcements were of damage awards from the settlement of discrimination lawsuits. Klassen *et al*'s positive announcements were environmental performance awards and the negative announcements were environmental crises e.g. oil spills.

Bosch, Woodrow, & Lee (1998) investigated the effect of the US Environmental Protection Agency (EPA) pollution control enforcement activities and firm response strategies on shareholder wealth. They found that the market reacted negatively upon learning that a firm had been targeted and that losing a contest with the EPA was very costly to shareholders.

Frooman (1997) conducted a meta-analysis of 27 event studies of socially irresponsible and illicit behaviour. He found that this type of behaviour had a statistically significant negative effect on shareholder wealth.

Ball & Brown (1968) and Fama (1969) conducted the seminal event studies introducing the methods that are still in use today. The following studies: Brown & Warner (1985), Dodd & Warner (1983) and MacKinlay (1997) all contain extensive explanations of the methodology.

Studies of events typically focus on the abnormal share returns around the date of the announcement (MacKinlay 1997). Abnormal returns are assumed to reflect the stock market's reaction to the arrival of new information. The abnormal returns represent returns earned by the firm after they have been adjusted for the "normal" returns. The rate of return on the share is adjusted by subtracting the expected return from the actual return. Any significant difference is considered to be an abnormal, or excess return. The standardised abnormal returns can be cumulated over a number of days (the event window) to derive a measure of the cumulative abnormal return for each firm. This is assumed to measure the average effect of the event on the value of *n* firms. The significance of the abnormal return allows the researcher to infer that the event had a significant impact on the values of the firms (McWilliams & Siegel 1997).

The conclusions from an event study are valid only if the researcher has truly identified the abnormal returns associated with the event and precisely identified the date of the event. The inference of significance relies on a number of assumptions: markets are efficient, the event was unanticipated, and there are no confounding effects during the event window. Mitchell &

Netter (1989), for example, found federal tax legislation news released on newswires was reflected in market prices after only 90 minutes.

The FTSE4Good

The FTSE (Financial Times Stock Exchange) first announced that it was working on its indices for socially responsible companies in February 2001. A third party, EIRIS (Ethical Investment Research Service), conducted the company screening. They collected information on the top 50 UK publicly quoted companies from company reports, surveys and other public sources. They produced a report for the FTSE4Good Advisory Committee. From these data the composition of the index was defined.

For inclusion in the index companies needed to satisfy criteria based on three principles: environmental, social and stakeholder, and human rights. Companies with business interests in tobacco, nuclear weapons, whole weapons systems, nuclear power and the extraction of uranium were automatically excluded. Companies had to meet criteria indicators in policy, management, and reporting. Sectors were classified according to their environmental impact: low, medium or high. High impact companies e.g. oil and gas, agriculture, air transport, were reported on a greater number of criteria than medium or low impact sectors (FTSE 2001;FTSE 2003).

When the advising committee approved a company, it became eligible to be included in the benchmark index. The top 50 companies by market capitalisation[12] were selected from the benchmark index and made up the tradable index. This means the 50 largest companies in the benchmark index were selected. At the six-monthly reviews companies could be deleted or included from the tradable index depending on their economic valuation or if their had been a change in their social or environmental status.

The addition of a company to the benchmark index was a signal to the market that it had reached a certain level of environmental and social performance. If that company was selected for the tradable index it also signalled its economic strength. If a company was deleted from the tradable index this most likely was because it had been superseded superseded in terms of its market capitalisation i.e. another company in the benchmark index had grown larger than it

[12] Market capitalisation is calculated by the number of shares outstanding multiplied by the price per share.

and had pushed it down the list and it was no longer in the top 50 largest companies. Removal from the tradable index therefore did not necessarily signal a deterioration in the environmental or social performance of the company. However, if a company was deleted from the benchmark index this signalled that its environmental and social status no longer met the criteria of the committee.

As discussed above, inclusion in the UK 50 index should bring reward because the company is perceived to be environmentally, socially and economically strong. However deletion should bring a penalty (for economic, environmental or social reasons).

The following hypotheses were elaborated:

Null hypothesis: There is no difference between the actual returns and the expected returns for the 42 companies in sample 1 (or between the abnormal returns and zero).

Hypothesis 1: Announcements of firms being included in the index will be associated with significant and positive share price changes for those firms.

Hypothesis 2: Announcements of firms being deleted from the index will be associated with significant and negative share price changes for those firms.

Hypothesis 3: There is asymmetry between the effects of positive and negative events on share price.

Stakeholders are increasingly looking beyond financial indicators when making investment decisions, especially those wanting ethical pensions, they can now do this through the acquisition and sale of shares according to their FTSE4Good status. Any share price movement as a result of accession to the index provides a company with a good proxy of the returns to investing in corporate social responsibility (CSR).

3.3 Methods

The first task for conducting the event study was to define the event of interest and to identify the period over which the share prices of the firms involved would be examined: the event window. It is normal to define the event window to be larger than the specific period of interest (i.e. the window runs from a few days before the announcement to a day or two after it). This is to capture any leak in information prior to the day of the announcement and to capture changes in share price due to latecomers to the announcement.

In this study the first event of interest was the announcement by FTSE of the constituents of the FTSE4Good UK50 Index in July 2001.

The share returns were then calculated from the share price using the formula:

$$R_{jt} = \text{Ln}\,(P_{jt} / P_{jt-1}) \qquad [1]$$

Where R_{jt} is the share return for firm 1 on day t and P_{jt} is the share price for day t.

The abnormal returns (AR or unexpected returns or residuals) were calculated for the event window according to the formula:

$$AR_{jt} = R_{jt} - E(R_{jt}) \qquad [2]$$

Where AR was the unexpected return for day t and E(R) is the expected share return for day t. The abnormal returns are the normal returns minus the expected returns. the expected returns are the returns normalised with Beta. I.e. what the market is doing at that time, accounting for the Beta (risk) of the market at that time. Therefore any difference between the abnormal returns and expected returns can be put down to fluctuations in the returns caused by the event in question i.e. the announcement of the FTSE4Good.

The expected or normal returns were obtained using the market model method.

$$E(R_{jt}) = \alpha_j + \beta_j R_{mt} + \varepsilon_{jt} \qquad [3]$$

Where R_{mt} was the return on a market index (e.g. FTSE All Share index) for day t, β measures the sensitivity of a firm to the market (risk), α measures the mean return over the period not explained by the market (and was deemed to be negligible), and ε was a statistical error term $\Sigma\varepsilon=0$. The regression produced estimates for α and β.

The abnormal returns were averaged across the whole sample:

$$AR_t = \Sigma AR_{jt} / N \qquad [4]$$

N was the number of firms in the sample. Share returns are noisy, this means that there is a lot of information that can affect share price. The noise tends to cancel out when averaged across a large number of firms, this is the reason for doing this

The average abnormal return was then tested to determine significance using T-tests.

The estimation window used to calculate Beta was –310 to –10 days before the start of the event window. A similar window length was used by Lorraine, Collison, & Power 2002; and Weston, Siu, & Johnson 2001.

The event windows were selected so as to be as short as possible to minimise the effect of other events during the window. The window included both the announcement day of the event and the change day (the day that the companies were actually included in the index or deleted from it). For the first sample the change day was not included as it was nearly a month after the announcement day. Because there was a lot of press coverage following the announcement it was deemed likely that the market would have reacted swiftly to the announcement. Seven samples were analysed in total, these are described in table 3.2.

The companies in the samples were from a range of industrial sectors. Table 3.1 shows the distribution of the companies in their 22 industry sectors. Banking, media and retail were the most popular sectors. This was because they score highly on the environmental criteria. They were not involved in manufacturing and therefore did not pollute. The constituent companies for each sample are listed in the Annex (Table 3.4).

Table 3.1: Industry sectors

Sector	Number of companies
Banks	9
Media	7
General retail	6
Beverages	5
Electricity	3
Life assurance	3
Oil and gas	3
Pharmaceutical	3
Telecommunications	3
Food producers and processors	2
Food retailers	2
Gas distribution	2
Real estate	2
Transport	2
Chemicals	1
Insurance	1
Leisure	1
Mining	1
Personal care and household products	1
Specialty and other finance	1
Support services	1
Water	1

Table 3.2 provides an overview of the nature of the samples analysed, the announcement days from FTSE, the change days (when the indices became effective, and the event windows used in the analysis.

Table 3.2: Sample constituents and event windows
(Anon 2001;Anon 2002b;FTSE 2003)

Sample Number	Sample Content	Announcement Day (AD)	Change Day (CD)	Event Window
1	Companies included in the first announcement	10th July 2001	31st July 2001	6 July – 15 July
2	Companies included in 1st review	18th September 2001	23rd September 2001	16 September – 25 September
3	Companies deleted in 1st review	18th September 2001	23rd September 2001	16 September – 25 September
4	Companies included in 2nd review	13th March 2002	18th March 2002	11 March – 20 March
5	Companies deleted in 2nd review	13th March 2002	18th March 2002	11 March – 20 March
6	Companies included in 3rd review	17th September 2002	23rd September 2002	16 September – 25 September
7	Companies deleted in 3rd review	17th September 2002	23rd September 2002	16 September – 25 September

The LexisNexis Group[13] database (a database of newspaper articles and newswire stories) was searched for news stories for each company in each sample for the whole month in which the event took place. The objective was to see whether companies in each sample had been subject to any significant confounding events during the event window. A confounding event would have been a very big news story involving the company in question, for example, an environmental disaster, litigation involving human rights transgressions, the company having

[13] LexisNexis Group: see www.lexis-nexis.com

a profit warning or having unusually high profits. It is possible that some of the news stories that occurred at this time would have had a confounding effect on the FTSE4Good announcements, but the samples were not altered to take these into account because they did not appear to be important stories. A list of the potential confounding events is given in the Annex (Tables 3.5 to 3.12). However, even small stories can have a small effect on share price.

3.4 Results

Descriptive statistics for the returns for the sample are show in Table 3.3. These show all the companies from all the samples and the FTSE All Share index. The statistics are for the period 31st December 1999 to 27th November 2002. The mean is therefore the mean return for this period. The minimum and maximum returns are given as well as the standard deviation. The table shows that over the 35 months, 38 of the 54 companies in the sample had negative mean returns. The FTSE index also had a negative mean return. The average return for the sample was –0.00049. This result shows that over the period the average share price of the companies decreased. The sample is therefore representative of the state of the stock market in this period. The stock market was going through a well documented slump during this period.

Table 3.3: Descriptive statistics for the sample returns

	Min	Max	Mean	Std. Deviation
FTSE	-.0535	.0464	-.000646	.0129856
ABBEY	-.1173	.1045	-.000521	.0264190
ALLIANCE	-.0735	.0974	.000035	.0206839
ALLIED	-.1009	.1427	.000342	.0217642
ASTRAZEN	-.1257	.1236	-.000019	.0227751
AMVESCAP	-.1550	.1884	-.000606	.0383073
BAA	-.1794	.1487	.000297	.0195748
BG	-.0950	.0990	-.000135	.0231165
BHPBIL	-.12	.16	-.0001	.02702
BOC	-.1322	.0846	-.000553	.0195315
BOOTS	-.0949	.1149	-.000054	.0200399
BARCLAY	-.0898	.0937	.000028	.0257903
BP	-.0818	.0925	-.000529	.0215223
BA	-.2384	.1568	-.001234	.0341391
BSB	-.1253	.1706	-.000561	.0351214
BT	-.1982	.1160	-.002148	.0328633
CABLE	-.4506	.1338	-.003433	.0386721
CADBURY	-.0924	.0974	.000137	.0192447
CANARY	-.2033	.0762	-.000426	.0214583
CENTRICA	-.0848	.1538	-.000078	.0234894
COMPASS	-.0987	.1202	-.001011	.0263210
DIAGEO	-.0808	.1079	.000415	.0205966
DIMENSIO	-.3740	.4020	-.005044	.0519479
DIXON	-.2318	.1601	-.000900	.0324859
GLAXO	-.0909	.1017	-.000441	.0211561
GRANADA	-.1091	.1167	-.001374	.0331086
GUS	-.1632	.1145	.000656	.0255032
HBOS	-.0983	.1977	-.000014	.0276210
HILTON	-.2354	.1548	-.000157	.0283673
HSBC	-.1433	.0867	-.000192	.0203719
KINGFISH	-.1546	.1064	-.001084	.0267956
LANDSEC	-.0517	.0661	.000111	.0135574
LEGAL	-.0726	.1085	-.000407	.0242221

LLOYDS	-.0923	.1187	-.000463	.0251370
MARKS	-.0852	.1665	.000214	.0248331
NATIONAL	-.0894	.0980	-.000072	.0176244
PEARSON	-.1214	.1428	-.001276	.0336966
PRUDENT	-.1501	.1115	-.001164	.0284620
RECKITT	-.1008	.1689	.000881	.0222325
REUTERS	-.2577	.2073	-.001801	.0390081
REED	-.0989	.1868	.000243	.0245774
ROYALSUN	-.2426	.1236	-.001655	.0329840
ROYALBAN	-.1526	.1063	.000602	.0269274
SAINSBUR	-.1145	.1085	-.000201	.0238984
SCOTNEW	-.0767	.0986	.000115	.0207232
SCOTSOUT	-.0701	.0898	.000323	.0186838
SCOTPOWE	-.1182	.0740	-.000361	.0211571
SHELL	-.0977	.0783	-.000289	.0215208
SHIRE	-.3795	.1509	-.000438	.0359885
STANDCHA	-.1665	.1081	-.000331	.0263015
TESCO	-.0843	.1040	.000083	.0198728
UNILEVER	-.0995	.0853	.000326	.0198312
UNITEDUT	-.0576	.0650	-.000064	.0184259
VODA	-.1018	.1195	-.001234	.0345286
WPP	-.1146	.1117	-.000877	.0332808

The abnormal returns data were tested for normality using the one-sample Kolmogorov-Smirnov Test[14]. Sample 1 was tested on its own, 2 and 3 together, 4 and 5 together, 6 and 7 together. The data was normally distributed for each set of samples. The samples were tested together because they were from the same time period.

Abnormal returns were calculated for each day of the event window and for each sample. The event window for sample 1 ran from day –4 to day +6. Daily returns were not available for days –3, -2, +4 and +5, because the share price was unavailable. Day 0 was the day FTSE announced the constituents of the FTSE4Good UK 50 Index. The change day, i.e. the day that the index came into effect was not until day +21. It was assumed that any effect of the event

[14] Kolmogorov-Smirnov One-Sample Test: Used to test the hypothesis that a sample comes from a particular distribution (uniform, normal, or Poisson). The value of the Kolmogorov-Smirnov Z is based on the largest absolute difference between the observed and the theoretical cumulative distributions.(SPSS).

would have been felt well before this date. On day 0, the stock market reaction was positive but not significantly different from zero. The mean return was 0.0023 . On days –4 and –1 the mean returns were negative. On days 0, +1 and +2, the mean returns were positive. On day +3 the mean return was again negative. None of these returns were significantly different from zero. But the movements can be interpreted as the market responding positively to the news of the announcements on days 0, +1, +2 and then correcting itself by day +3.

The event window for sample 2 ran from day –4 to day +5. The event was positive: new companies were included in the index at the first review. None of the abnormal returns were statistically significant from zero. However the mean return for day 0 was positive whereas the mean returns for days –1 and +1 were negative. The trend therefore was that the positive event had a slight positive impact on the returns.

Sample 3 was a negative event and had the same event window as Sample 2. In this sample companies were deleted from the index at the first review. The results showed negative returns. At day –4, the mean difference was positive; days –1, 0, +1 and +2 were negative. Day +3 was positive. The negative event had a, negative effect on the returns but it was not statistically significant.

Samples 4 and 5 each only had one company in the sample so no analysis was performed.

The event window for sample 6 ran from day –1 to day +8. The event was positive: companies included at the third review. There was a positive and statistically significant return on day –1. There was a positive return on day 0. Perhaps the market had assimilated the news prior to the announcement of the event. Day +1 was also positive.

Sample 7 represented a negative event, companies being deleted in the third review. There were negative returns on days –1 and day 0 but they were not statistically significant. The negative trend of the results was a trend in the anticipated direction.

The event windows varied in length in order to accommodate both the Announcement Day and the Change Day.

3.5 Discussion

The null hypothesis cannot be rejected. Six of the samples showed no significant results. Sample 6 was statistically significant but this should be treated with caution.

We cannot accept Hypothesis 1: inclusion announcements were met with positive changes in share price. The results were not significant but the trend was in the anticipated direction
We cannot accept Hypothesis 2: deletion announcements were met with negative changes in share price. Again, the results were not statistically significant, but the trend was in the anticipated direction.

Hypothesis 3 postulated that there was asymmetry between the effects of positive and negative events on share price. This couldn't be tested for because of the lack of statistically significant results.

The results showed a trend that positive announcements lead to positive movements in share price (daily returns) and negative announcements lead to negative movements in share price. But the results were not statistically significant. One result was significant (sample 6) but this may be due to chance, as one result in 20 will show a false positive[15]. The results therefore suggested that there was no significant return to quotation on the FTSE4Good UK 50 tradeable index.

The FTSE4Good indices were still relatively unknown at the time of writing and therefore were not considered by many investors and analysts as leading indices for making investment decisions. However, it appeared from the results that the market made some small adjustment during the event window. This may have been based on the speculation as to which companies were likely to be included in the index and which were not. It is possible that over time the indices will become more widely known and the movements of share price at the time of announcements will become more significant.

These movements in share price may be attributable to the FTSE4Good but not because of the environmental and social characteristics of the index. Movements in and out of the index provide investors with financial information, i.e. changes in market capitalisation account for companies being included or deleted from the index. However, investors would get this information from other sources. This financial component of the index may confound any environmental or social effect of the index. Investors know that the FTSE4Good events have no impact on the expected cash-flow of the companies involved. This raises an important question about how CSR indices should be constructed.

[15] This is a Type 1 error: when the threshold for rejection of the null hypothesis is P=0.05, an investigator is said to accept the 5% level of significance. This means that in tests where the computed value of the test statistic is equal to or barely exceeds the critical value, the decision to reject the null hypothesis is probably correct 19 times out of 20 (or 95% of the time). 5% of the time there is a risk of rejecting the null hypothesis when it is true (Fowler 1990).

Well before the event, investors may have forecasted that the index would impact on the future cash flow of the company and adjusted the share price very early on (Berchicci et al. 2001). Significantly, the reasons for additions and deletions of companies from the tradeable index were not publicly known. The stock market needs perfect information to function efficiently.

The results of this study were unsatisfactory but they do add to the body of literature on CSR and on event studies. At the time when this analysis was conducted (2002-2003) no event study had been conducted using the FTSE4Good index data. Very few event studies have investigated both positive and negative news stories in the same study. This study provides new work in this area.

This study does flag up the need for FTSE to be more explicit about the reasons why companies are included and especially deleted from the index. It is important to know whether companies are deleted because of their economic status or because they have committed some environmental or social transgressions that no longer make them eligible for inclusion in the index. This information will be useful to investors and researchers alike.

The use of an event study to pick up the link between changes in share price and inclusion in the index was always going to be difficult. The index is new, there are other events going on at the same time, and ultimately investors give more attention to straightforward financial information about a company when making investment decisions. They have to go through a more complicated thought process to make the link between good CSR, increased financial performance and share price. Eventually investors will all automatically make this link when confronted with CSR information, but at the moment it is a minority.

3.6 Conclusion

This chapter examined the return to companies from being included in a modified share index that signals good performance in terms of CSR. . However, companies were not rewarded for being included in the index and they were not penalised for being deleted from it. The FTSE4Good tradable index is an index of companies ranked by market capitalisation selected from a pool of companies that have been screened for their environmental and social performances. Companies can move in and out of the tradable index, and do so because of changes to the market capitalisation or because of changes in name due to mergers and acquisitions and not solely due to changes in their environmental or social performance status.

Despite companies not benefiting from raised share prices if they are included in the index, it is still important in the long run for companies to strive to be included in such indices. This is because they gain a reputational benefit from being seen as a constituent. The companies can display the FTSE4Good logo on their marketing literature. Their customers will take on board that this means they are dealing with an ethical company. In the long term this will have a positive effect on their bottom line. People will want to buy their products, invest in them, or work for them. Companies not displaying the FTSE4Good logo, because they are not in the index may suffer reputational slurs if their competitors are constituents. This could adversely affect their bottom line.

In the future FTSE should disclose why companies are added to or deleted from both the tradeable and benchmark indices. This will make it a more useful proxy for CSR and movements in share price will be clearer indicators of the relationship between environmental and social activities and financial performance.

3.7 Annex

Table 3.4: Constituents of each sample for the FTSE4Good UK 50 Index and sector
(Source: Regulatory News Service, 2001 and 2002; Financial Times, 2002).

Sample 1 Included in first index	Sample 2 Included at first review	Sample 3 Deleted at first review	Sample 4 Included at second review	Sample 5 Deleted at second review	Sample 6 Included at third review	Sample 7 Deleted at third review
ABBEY NATIONAL PLC Banks	ROYAL BANK OF SCOTLAND GROUP Banks	UNITED UTILITIES Water	BOC GROUP Chemicals	SHIRE PHARMACEUTICAL GROUP Pharmaceuticals	NATIONAL GRID GROUP Electricity	DIXONS general retailers
ALLIANCE & LEICESTER PLC Banks	TESCO Food Retailers	CANARY WHARF GROUP Real estate			RECKITT BENCKISER Personal care and household products	GRANADA Media
ALLIED DOMECQ PLC Beverages	BG GROUP Oil and gas	SCOTTISH AND NEWCASTLE Beverages			BHP BILLITON PLC Mining	ROYAL AND SUN ALLIANCE INSURANCE GROUP Insurance
ASTRAZENECA PLC Pharmaceuticals	REED INTERNATIONAL Media	BRITISH AIRWAYS Transport				
BAA PLC Transport	AMVESCAP Specialty and other finance	DIMENSION DATA HOLDINGS				
BANK OF SCOTLAND Banks						
BARCLAYS PLC Banks						
BASS PLC Beverages						
BOOTS CO PLC						

General retailers	
BP PLC	
Oil and Gas	
BRITISH AIRWAYS PLC	
Transport	
BRITISH SKY BROADCASTING GROUP PLC	
Media	
BRITISH TELECOMMUNICATIONS PLC	
Telecommunications	
CABLE & WIRELESS PLC	
Telecommunications	
CADBURY SCHWEPPES PLC	
Food producers and processors	
CANARY WHARF GROUP PLC	
Real Estate	
CENTRICA PLC	
Gas Distribution	
CGNU PLC	
Life Assurance	
COMPASS GROUP PLC	
Support Services	
DIAGEO PLC	
Beverages	
DIMENSION DATA HOLDINGS PLC	
DIXONS GROUP PLC	

General retailers
GLAXOSMITHKLIN E PLC
Pharmaceuticals
GRANADA PLC
Media
GUS
General Retailers
HALIFAX GROUP PLC
Banks
HILTON GROUP
Leisure
HSBC HLDGS PLC
Banks
KINGFISHER PLC
General retailers
LAND SECURITIES PLC
Real Estate
LATTICE GROUP PLC
Gas Distribution
LEGAL & GENERAL GROUP PLC
Life Assurance
LLOYDS TSB GROUP PLC
Banks
MARKS & SPENCER PLC
General Retailers
PEARSON PLC
Media
PRUDENTIAL PLC
Life Assurance

REUTERS GROUP	
Media	
ROYAL & SUN	
ALLIANCE	
INSURANCE	
Insurance	
SAINSBURY(J) PLC	
Food Retailers	
SCOTTISH &	
NEWCASTLE PLC	
Beverages	
SCOTTISH &	
SOUTHERN	
ENERGY PLC	
Electricity	
SCOTTISH POWER	
PLC	
Electricity	
SHELL	
TRANSPORT &	
TRADING CO PLC	
Oil and Gas	
SHIRE	
PHARMACEUTICA	
LS GROUP PLC	
Pharmaceuticals	
SOUTH AFRICAN	
BREWERIES	
Beverages	
STANDARD	
CHARTERED PLC	
Banks	
UNILEVER PLC	
Food producers and	
processors	
UNITED UTILITIES	
PLC	

Water
VODAFONE GROUP PLC
Telecommunications
WPP GROUP PLC
Media

Table 3.5: Summary of Confounding events for sample 1

Company	Event	Effect
Abbey National	Govt blocks Lloyds TSB planned takeover of Abbey National	
Boots	Possible merger with Sainsburys	
BP	Deal worth 1.5Bn	Up
British Airways	Possible merger with AA	
Cable and Wireless	Controversy over executive pay	Down
Diageo	Mixed results	Down
Kingfisher	Stocks upgraded	Up
Lloyds TSB	Govt block takeover of Abbey National	
Marks and Spencer	Fall in sales	Down
Unilever	Rumours of profit warning	Down
Vodafone	EC raid on overcharging, remuneration	Down

Table 3.6: Confounding events for launch of FTSE4Good UK 50 Index in July 2001

Name	Event	Date	Effect on share price
Abbey National	Speculation on block of merger	8 july 2001	
	Govt block Lloyds TSB's planned takeover of Abbey National	9-10th July 2001	
	Abbey plans to sell its consumer finance arm for 300m	15 July 2001	
Alliance and Leicester	Exposed for takeover	15 July 2001	Up
	First half profits announced, fall	21 July 2001	Down
Allied Domecq	Announced bid for NZ wine group for 286m	3 July 2001	
	Blocked by NZ stock exchange for 21 days	9 July 2001	
Astra Zeneca	Interim profits	28 july 2001	Up
Bank of Scotland	BOS trading well because of speculation that a counterbidder may emerge	3 July 2001	Value for both banks
	Shares trading in tandem with Halifax		

BAA	Over worst effects of FMD, passenger no. up	13 July 2001 25 july 2001	Up
	Planning enquiry for terminal 5 rumbles on	30 July 2001	
	Interim results		
Boots	Sale of skincare brands for 20m	4th July 2001	
	First steps in merger with Sainsburys	8 July 2001	
	Boots withdraws from Japan	14 July 2001	
	Boots selling Halfords to Centrica	26 July 2001	
Barclays	Employees who blew 44k on dinner	15 July 2001	
Bass (Six Continents)	Change of name	1 July 2001	
BP	Profits announced	3 July 2001	Up
	BP deal with Statoil worth 1.5bn	10 July 2001	
	Sale of subsidiaries 200m	10 July 2001	
	BP buys Aral service stations and becomes Europe's largest petrol retailer	17 July 2001	
	Sale of refineries 483m	18 July 2001	
	Second quarter results expected to be good	28 July 2001	
British Airways	Death of passenger from DVT	4 July 2001	
	Passenger no. down, potential merger partner KLM profit warning	5 July 2001 8 July 2001	
	Lay-offs	15 July 2001	
	BA should hear soon about tie-up with AA	18 July 2001 27 July 2001	
	First quarter down		
	Airlines takeover Air Traffic Control Lawsuits over DVT	29 July 2001	Down
BskyB	Tie-up with Ladbrokes (Hilton)	13 July 2001	
	Received letter from EC on suspected anti-competitive behaviour	23 July 2001	
	Announcement of 21% increase in subscribers	28 July 2001	
BT Group	BT and ATT to close Concert	1 July 2001	
	BT sells stake in Rogers	4 July 2001	
	Sale of Blu	18 July 2001	Up
	BT announces redundancies	27 July 2001	
Cable and Wireless	Controversy over executive share option scheme	11 July 2001 17 July 2001	
	Shareholders want share of cash pile	20 July 2001	

	Revolt over executive pay	29 July 2001	
	Profits could fall in Caribbean		
Cadbury Schweppes	CS is to buy La Casera for 71m	25 July 2001	Down
	Interim profits	26 July 2001	
	Launch of Venom	26 July 2001	
Canary Wharf Group	Bid to recover money from London Underground	19 July 2001	
Centrica	Downgraded from accumulate to neutral	3 July 2001	Down
	Court case over Goldfish	4 July 2001	
	Centrica buys Onetel	13 July 2001	
	Bid for Southern Water possible	26 July 2001	
	Purchase of Halfords service centres		
CGNU	Scrapping of quarterly reports	6 July 2001	
Compass Group	Acquisition of Vendepac	28 July 2001	
	Win contract for 20m	9 July 2001	
	Sale of le Meridien	12 July 2001	Up
	Asset swap	13 July 2001	Up
	Rating lowered	17 July 2001	Down
Diageo	Plans 2.5bn share buyback next year	1 July 2001	
	Guiness World of Records to be sold for 45m	1 July 2001 13 July 2001	
	Burger King to be bought out by BK	13 July 2001	Down
	Mixed results		
	Shares hit by results		
	Market cautious on stock ahead of earnings statement		
Dixons	Statement to be announced	4 July 2001	
	Profits up	20 July 2001	Up
GlaxoSmithKline	Litigation over anti-depressant	10 July 2001	
	Pharmacogenomics could bring new opportunities for GSK	12 July 2001	
	Interim results forecast good	23 July 2001	
	Profits good	25 July 2001	
	Restructuring costs high	25 July 2001	
Granada	Corporate jet grounded in economy drive	1 July 2001	
	Jobs to go at Ondigital (owned in part by Granada)	1 July 2001	
	Struggling, redundancies	21 July 2001	
GUS	CEO bonus disclosed	4 july 2001	
	City concerned about consumer spending	26 July 2001	Down

	Concern over non-float of Burberry	26 July 2001	
	Argos doing well but forecast downturn	29 July 2001	
	Consumer Association investigation		
Halifax	Discussion of merger with BOS	3 July 2001	
	Rescue of Equitable Life	18 July 2001	Down
	BOS deal approved	20 July 2001	Up
Hilton Group	Deal to sell hotels will free up cash	10 July 2001	
	Ladbrokes to join with BskyB	13 July 2001	
	Hotels face difficult times	15 July 2001	
	Gaming rules change, jobs to be created at Ladbrokes	23 July 2001	Up
HSBC	Lawsuit against former CEO of Independent Insurance	20 July 2001	
	Sale of Mira 300m	20 July 2001	
Kingfisher	Boardroom row over CEO/ demerger of Woolworths	2 July 2001	
	Plan to sell Superdrug 310m	4 July 2001	
	Stocks upgraded	7 July 2001	Up
	Confusion over strategy	19 July 2001	
	Forecast lower than planned	19 July 2001	
	Row over pay of CEO	29 July 2001	
Land Securities	----------		
Lattice Group	Outcome of trial of Transco (subsidiary) for gas explosion awaited	15 July 2001	
Legal and General	New business up	26 July 2001	
Lloyds TSB	Govt block takeover of Abbey National	15 July 2001	
	Interim profits down	28 July 2001	Down
Marks and Spencer	High remuneration package for directors	5 July 2001	
	Fall in clothes sales/ profit warning	8 July 2001	
	Fall in sales	12 July 2001	
	Win photocopy case	16 July 2001	
	Deal with Universal Music	21 July 2001	
	Removal of battery eggs	24 July 2001	
	Sale of French shops	25 July 2001	
Pearson	Announcement of first half results – downturn	28 July 2001	
Prudential	Plans to unlock orphan assets	2 July 2001	
	Prudential in Spearmint Rhino landlord situation	15 July 2001 15July 2001	
	Purchase of Waterstones planned	25 July 2001	

	Egg profit	27 July 2001	
	Profits announced		
Reuters	Redundancies announced	23 July 2001	
Royal and Sun Alliance	Aegon to buy Royal Sun life insurance business	25 July 2001	
	RS to buy Groupama		
	Exit charges		
Sainsbury	First steps towards merger with Boots	8 July 2001	
	Walmart jitters		
	Cancer scare chemical in food	15 July 2001	
	Quarterly figures up	21 July 2001	
	Announce of first annual loss	2 July 2001	Down
Scottish and Newcastle	Announce of remuneration	27 July 2001	
Scottish and Southern Energy	---------		
	Downgraded by broker	21 July 2001	Down
Scottish Power	Profits will be lower	22 July 2001	
	Animal activists to target Shell	16 July 2001	
	BP overtakes Shell as largest Euro petrol retailer	17 July 2001	
		24 July 2001	
	Purchase of wind farm	28 July 2001	
Shell Transport	Second Q results to be profit		
	Product threat	20 July 2001	Down
	Profits announced/ promoted to recommended list	24 July 2001	
Shire Pharmaceuticals			
South African Breweries	350m convertible bond issue	11 July 2001	Down
	News expected that SC will be listed on HK stock exchange	29 July 2001	
Standard Chartered			
	May sell Diversey worth 1bn Euro	12 July 2001	
	Rumours of profit warning	13 July 2001	Down
Unilever	Profits good	30 July 2001	
United Utilities	Looking good	29 July 2001	
	Remuneration disclosure	3 July 2001	Up
	Big stock sale	4 July 2001	
	Slowdown on new customers	6 July 2001	
	EC raid on overcharging	12 July 2001	
	Revolt over remuneration	15 July 2001	
	Delay to 3G	21 July 2001	
Vodafone	“dead” subscribers cut off	25 July 2001	Down
WPP	Purchase of company	8 July 2001	

	New contract for WPP	11 July 2001
	Break up of deal	20 July 2001

Table 3.7: Confounding events for sample 2

Name	Event	Date	Effect
Royal Bank of Scotland	Excluded from FTSE4Good UK 50	11 July 2001	Down
	Concern over bad debt	7 Sept 2001	Down
	Bank exposure to Marconi	8 Sept 2001	
	RBOS expects to be included in FTSE4Good	10 Sept 2001	
	Banks could face write off of billions in corporate lending	23 Sept 2001	
	Denies reports of relationship with Taliban bank	27 Sept 2001	
Tesco	Excluded from FTSE4Good UK 50	11 July 2001	
	Tesco has 22.8% of market	2 Sept 2001	
	Tesco is Europe's second biggest retailer	3 Sept 2001	
	Tesco.com break even, biggest in world	9 Sept 2001	
	Lobbying for place on FTSE4Good index	10 Sept 2001	
	Profits to be announced	15 Sept 2001	
	Tesco to cut prices	16 Sept 2001	
	Growth to slow-down	19 Sept 2001	
	Plan to create jobs, no effect from 9-11	19 Sept 2001	
	Included in FTSE4good	19 Sept 2001	Up
	Interim results good	23 Sept 2001	
BG	BG is safe haven	21 Sept 2001	Up
	Production growth rate to slow down	25 Sept 2001	
Reed International	----------		
Amvescap	Speculation over bid for Zurich Scudder Investments	7 Sept 2001	
	Shares down	11 Sept 2001	Down
	Very volatile	29 Sept 2001	Down

Table 3.8: Confounding events for sample 3

Name	Event	Date	Effect on share price
United Utilities	Never go out of fashion, even during time of crisis	29 Sept 2001	
Canary Wharf Group	Halt speculative development due to uncertain economic outlook	14 Sept 2001	
Scottish and Newcastle	Alliance with Miller	23 Sept 2001	
	Brewing can weather downturns better	30 Sept 2001	
British Airways	9-11 fall out	12 Sept 2001	Down
Dimension Data Holdings	Staff lay-offs, profits warning	19 Sept 2001	Down

Table 3.9: Confounding events for sample 4

Name	Event	Date	Effect on share price
BOC	Potential cost savings, strong growth	9 March 2002	

Table 3.10: Confounding events for sample 5

Name	Event	Date	Effect on share price
Shire Pharmaceutical	Profit warning	1 March 2002	Down

Table 3.11: Confounding events for sample 6

Name	Event	Date	Effect on share price
National Grid Group	Included in fTSE4Good index	17 Sept 2002	
Reckitt Benckiser	Savings programme	1 Sept 2002	
	Pays dividends on time	29 Sept 2002	
BHP Billiton	Plans to raise 500m	22 Sept 2002	

Table 3.12: Confounding events for sample 7

Name	Event	Date	Effect on share price
Dixons	Pre annual meeting	11 Sept 2002	Up
	Retirement of chairman	12 Sept 2002	Down
Granada	------		
Royal and Sun Alliance	Cash call by Zurich	3 Sept 2002	Down
Insurance Group	CEO to get big pay-off/reviewing capital needs	13 Sept 2002	
	Cash-strapped	21 Sept 2002	
	Job cuts/ rights issue very likely	25 Sept 2002	

4.0 What is a firm's probability of passing an environmental and social screen?

4.1 Introduction

The purpose of this chapter was to identify the probability of a company passing a social and environmental screen given information about a company's size, financial performance, and sector. A "screen" is, in the investment sector, the activity of selecting a company for inclusion in socially responsible funds based on a company's social and environmental record. The interest of this study is for SRI (socially responsible investment) researchers to be able to concentrate their activities on companies that are likely to pass a screen, rather than spend too much time researching companies that fail and are of no interest to their fund managers.

There are an ever-increasing number of asset management companies world-wide offering socially responsible investment products such as mutual funds and pensions. In the US, it is estimated that $2 trillion is under socially responsible management (Social Investment Forum 2001). One of the companies offering such products is Calvert Group, Inc.[16], a US asset management company based outside Washington DC. It has been screening companies for inclusion in ethical or "socially responsible" funds for over 20 years. Calvert started by screening out companies with negative attributes such as tobacco, alcohol, gambling, pornography, nuclear technology and weapons in order to satisfy a mostly church-based clientele. It has since added to the screening process a series of positive screens. These fall into seven categories: labour, human rights, indigenous rights, community, environment, product, and business ethics. The methodology is proprietary. Calvert's analysts research companies by accessing publicly available information such as the company's website, its annual report, emissions data, and health and safety data (filed with government departments). Companies may pass if they comply with the law and have environmental and social policies and practices that go above and beyond legislation. For example, this can happen where the companies demonstrate engagement with stakeholders on issues pertinent to the companies' activities. They may conditionally pass the screen if the outcome of the research is unclear and requires clarification from the company on certain issues. They will fail if the company is obviously breaking the law or engaged in activities that do not meet Calvert's criteria. Companies are reviewed regularly and their pass/fail status may change as a result of changes in company policies and activities and even as a direct result of Calvert's engagement with that company.

[16] www.calvert.com

In this study, the definition of corporate social and environmental responsibility will be whether a company passes the Calvert Social Index Universe screen. Companies that pass the screen are considered to be socially and environmentally responsible and thus companies that fail the screen are not socially and environmentally responsible.

Calvert reviews thousands of companies from around the world in order to have as large a universe of companies as possible for their "stock pickers," or portfolio managers, to choose from. The majority of companies reviewed are constituents of the Russell 1000. The Russell 1000 is an index of the 1000 largest US companies by market capitalisation (see table 1 for definition). Companies in the index are categorised into 12 sectors and into sub-sectors of 171 industry groups (Russell 2003). The Calvert Social Index Universe (CSIU) is based on the Russell 1000 index and it is from this universe that the present study's data are taken. The Russell indices are updated annually to reflect changes in market capitalisation and therefore the constituents of the CSIU are also updated annually.

4.2 Background

There are two ways of examining the relationship between CSR and financial performance. The first is "how does CSR affect financial performance?" and "is the relationship positive?" This requires a retrospective analysis. Most of the literature is of this type of analysis and often in the discussion section discusses the direction of causality but with no empirical analysis (Coffey & Fryxell 1991;Waddock & Graves 1994) i.e. is it CSR that affects financial performance or is it financial performance that affects CSR.

The second approach is a prospective analysis: "how does the past financial performance of a company affect the likelihood of a company engaging in CSR?", or the other causality argument. This type of analysis is useful to predict which companies are likely to engage in CSR. This chapter provides a unique addition to the literature as it is a prospective analysis of the relationship between CSR and financial performance, as well as CSR and size, and CSR and sector. No examples of all these types of analyses in one study were found in the literature. Examples where one or other of these analyses were conducted were found in the following studies.

Stanwick & Stanwick (1998) showed that firm size affected its corporate social performance (CSP). They used yearly sales as a measure of firm size and they found that larger firms recognised the need to be leaders in their commitment to CSP. The leadership role may be

due not only to a firm's access to additional resources used to implement CSP but also due to the increased influence of additional stakeholders on it e.g. environmental groups and government regulation. Trotman & Bradley (1981) examined the effect of firm size on social responsibility disclosure of Australian companies. Fombrun & Shanley (1990) found larger firms had a higher value of their corporate reputation index. Britton & Gray (2001) used the Business in the Environment Index of Environmental Engagement to assess the link between environmental performance, size and industry in UK companies. The results suggested that performance in the index was associated with the size of the company, using turnover and profit as proxies for size.

There is little literature on the relationship between corporate social performance and sector. Heinze, Sibary, & Sikula (1999) found a strong relationship between CSR, financial soundness and investment value for the industry groups: chemicals, soaps and cosmetics; forest and paper products; and electronic and semiconductors. They found weak relationships between CSR and the two financial performance measures for the groups: petroleum refining; computer peripherals; publishing and printing; and mining and crude oil. Edwards (1998) suggested that future research should investigate the effect of industry on the relationship between environmental and financial performance. He suggested one might expect that in the chemicals industry, where environmental expenditure has risen to around 20% of corporate capital expenditure, an environmental investment decision would have more impact on the company's financial position and relative competitive position than companies in low pollution industries such as healthcare.

This study followed the resource-based view of the firm that a company's competitive advantage is rooted inside a firm's assets. These assets or resources include tangible, intangible and personnel-based assets. Tangible resources include financial reserves and physical resources such as plant, equipment and stocks of raw materials; intangibles include reputation, technology and human reputation; and personnel resources include culture, training and expertise (Russo & Fouts 1997). Increased resources in the firm will lead to increased likelihood of engaging in CSR (and passing the screen). An indicator of resources is market capitalisation,

The following financial indicators were selected for the analysis: market capitalisation, net profit margin and income gearing. These are defined in Table 4.1. These are all indicators of financial performance; market capitalisation is also a measure of company size. These indicators were selected because they provided a mix of market and accountancy indicators.

These indicators are commonly found in the literature for analysing the relationship between CSR and financial performance.

Table 4.1: Definitions of financial indicators

Indicator	Definition
Market capitalisation	The number of shares outstanding multiplied by the price per share (Anon 2003a) (market indicator)
Net profit margin	Earnings Before Interest and Taxes-tax/Sales (Brealey & Myers 1996) Net profit divided by net revenues (Anon 2003a) (accountancy indicator)
Income gearing	Interest payments/earnings before interest (Higson 1995) (accountancy indicator)

Based on past research the hypotheses to be empirically tested were:

Hypothesis 1: Large companies are more likely to pass the screen than small companies.

It was decided that a company was defined as large if it featured in the top 25% of the Russell 1000. With the resource-based view of the firm in mind, a large company, with more resources than a small company was more likely to pass the screen because it has more resources to spend on CSR. It has more to protect and more to lose than a small company. Large companies have more stakeholders who are more likely to bring environmental and social transgressions to the attention of the company and of the media. Therefore investing in CSR will protect the company from unwanted attention and will increase its good reputation which in turn helps its shareholders. Large companies have large numbers of shareholders, including powerful institutional investors. These will not want to invest in a risky company, therefore engaging in CSR can offset risk e.g. fines and litigation from environmental or social irregularities. Large companies can be measured by their large market capitalisation.

Hypothesis 2: Companies with a high net profit margin are more likely to pass the screen

A company with a high net profit margin is more likely to pass the screen or be engaged in CSR than one with low profit margins. Net profit margin is an indicator of profit divided by revenues and correlates with how good a company is at cost control and therefore how good

at overall management. In turn, good company management was shown by Waddock & Graves (1997) to correlate positively with CSR Returning to the resource based view of the firm: a company with high profit margins has more resources than one with low profit margins. It has more resources to spend on CSR e.g. on pollution abatement technology or on employee training and benefits. Of course it is possible that profits might not be ploughed back into the firm, but may be distributed to shareholders and executives.

Hypothesis 3: Companies with high income gearing are less likely to pass the screen

A company with a high income or capital gearing means that it has to repay a high amount of interest on loans per earnings or capital. A company with low income gearing pays back less interest in relation to its capital. Companies with high income gearing therefore have fewer resources available to them for non-income generating activities such as CSR. They are less likely to pass the screen.

Based on knowledge of the environmental impact of the energy sector the following hypothesis was formulated:

Hypothesis 4: Energy companies were more likely to fail the screen than the sum of companies in all other sectors.

Energy companies were defined as those featuring in the Russell Utilities sector and "Other Energy" sector. They included: oil crude producers, coal, oil well equipment machinery, offshore drilling, gas pipelines, electricity, gas distribution, telecommunication, water, cable, TV and radio utilities. These companies were less likely to pass the screen than other companies because of a number of reasons. They are by their nature in an environmentally polluting sector, oil, gas and coal producers, refiners and power stations all produce greenhouse gases. However, it is more the case that energy companies in the US are diversified and tend to include nuclear power stations as part of their portfolio of activities that make them instantly fail the Calvert screen. No nuclear power of any sort is included in the screen.

Hypotheses 5: Financial services companies were more likely to pass the screen than companies from all other sectors.

Companies in the financial services sector are generally considered to have a low environmental impact, as they are not involved in manufacturing processes. They have an

indirect impact on human rights and the environment through their investments. They have a direct impact on communities through their lending policies. Through the US Community Reinvestment Act[17], US banks are legally bound to invest in low-income areas; this provides them with improved CSR credentials.

4.3 Data

The Calvert Social Index Universe was obtained for March 2003. Companies that passed Calvert's screen were coded as 1 and those that failed coded as 0: this was the dependent variable. The explanatory variables were five different financial indicators to examine the relationship between size and financial performance and passing the screen. Market capitalisation data were obtained from the Calvert database. The datasets for the other financial indicators were obtained from Datastream[18].

Table 4.2: Independent variables: description, number, mean, standard deviation, minimum, maximum, and expected sign of coefficient

Description	N	Mean	Standard Deviation	Min	Max	Expected sign
Market capitalisation $US	1023	4.04E+09	1.76E+10	1733.4	2.6E+11	+
Income gearing %	558	17.476	275.345	-5034.34	3304.59	-
Net profit margin %	554	-16.131	284.282	-6157.96	73.66	+
ENERGY	124	0.12	0.327	0	1	-
FINSERV*	200	0.2	0.397	0	1	+

*FINSERV is the dummy variable for Financial Services companies

Table 4.2 shows descriptive statistics for the financial indicators and the two sectors to be tested. Market capitalisation ranged from $1,733 to $259 Billion. The mean market capitalisation was $4 Billion. The "expected sign" column signifies the expected direction of the relationship. It was expected that companies with large market capitalisations, large capital employed/employee and large sales/employee would have a high probability of passing. Companies with high income gearing were not expected to pass the screen. Companies with high net profit margin were expected to pass the screen.

[17] http://www.ffiec.gov/cra/

[18] © "Datastream International Limited ALL RIGHTS RESERVED" www.datastream.com

The mean income gearing was 17.5%. . The mean net profit margin was –16%.

There were 124 energy, utility and related companies in the total sample of 1,023 companies. It was assumed that there would be a negative relationship between the ENERGY sample and passing the screen compared to the rest of the sectors. There were 200 financial services companies in the total sample. The assumption was made that there would be a positive relationship between FINSERV and passing.

4.4 Methods

In the model the dummy variable ENERGY was created to examine the relationship between the energy sector and passing the screen. All the companies in the "utilities" and "other energy" sectors in the Calvert Social Index Universe (headings taken from Russell index) were coded as 1, all other companies were coded as 0.

In the model, the dummy variable FINSERV was created to examine the relationship between the financial services sector and passing the screen. All companies in the "financial services" sector were coded as 1 and all other companies were coded as 0.

The hypotheses were tested using the probit model, which is a binary-choice model. It is used when the dependent variable is dichotomous. In this case pass/fail are the dichotomous dependent variables. Binary-choice models are probability models. The observed dependent variable 1/0 outcomes are assumed to be the result of a probabilistic data generation process that can be made conditional of observed firm characteristics and other explanatory variables. Probit (logit) models are commonly formed using normal (exponential) probability distribution to describe the random element to the data generation (or approximate). These models use link function of explanators that are observable elements of screen outcomes.

Changes in X, the explanatory variable, are associated with changes in the dependent variable for all values of I. e.g. the larger the value of the index I_i, the greater the probability of a company passing the screen

Index I_i is expressed:

$$I_i=\beta_1 +\beta_2 X_I \qquad [1]$$

Where X is the explanatory variable e.g. financial indicator of the $_i$th company

How is the I_I related to the actuality of passing the screen?

Let Y=1 if the company passes and Y=0 if it fails.

For each company there is a critical or threshold level of the index I^*_i, such that if I_I exceeds I^*_I, the company will pass the screen, otherwise it will not. The threshold I^*_I is not observable, but it is assumed to be normally distributed with the same mean and variance. It is possible to estimate the parameters of the index given in [1] and to get information on the unobservable index itself.

Given the assumption of normality, the probability that I^*_I is less than or equal to I_I can be computed from the standardised normal cumulative distribution function (CDF) as:

$$P_I = 1/\sqrt{2\pi} \int_{-\infty}^{\beta_1 + \beta_2 X_I} e^{-t2/2}\, dt \qquad [2]$$

Where t is a standardised normal variable. Since, P_I represents the probability that an event will occur, i.e. of a company passing the screen, it is measured by the area of the standard normal curve from $-\infty$ to I_I

To obtain information on index I_I, the inverse of [2] is taken:

$$I_I = F^{-1}(P_I) = \beta_1 + \beta_2 X_I \qquad [3]$$

Where F^{-1} is the inverse of the normal CDF. We interpret the probability P resulting from the probit model as an estimate of the conditional probability that a company will pass, given the company's financial status X. This is equivalent to the probability that a standard normal variable will be less than or equal to $\beta_1 + \beta_2 X_I$.

4.5 Results

As a basic check on causality the models were first run individually to test the hypotheses. The results are shown in Table 4.3. The asterisks denote results that were statistically significant ($P<0.05$).

The first model tested market capitalisation. The negative sign of the result shows that the higher the market capitalisation of a company, the less likely it was to pass the screen. The result was statistically significant. The results showed that the greater the income gearing, the less likely the company was to pass the screen. The results showed that the greater the net profit margin the more likely the company was to pass the screen. The ENERGY model, showed that there was a negative and statistically significant relationship between energy sector and passing. The FINSERV model showed a positive and statistically significant relationship between financial services and passing. However, while indicative, entering these variables individually could have lead to misspecification of the regression which could be manifested by the fact that individual explanatory variables appeared to be significant but were in fact not. In other words, the lone variable will pick up the explanatory power of any omitted significant explanatory variables

Table 4.3: Individual models

Independent variables	1	2	3	4	5
Constant	-1.67	-2.96	-3.11	-3.02	-3.06
	(-22.82)	(-94.62)	(-67.55)	(-241.85)	(-219.92)
Market capitalisation (log)	-0.196				
	(-17.7)*				
Income gearing (log)		-0.084			
		(-3.18)*			
Net profit margin (log)			0.11		
			(2.2)*		
Energy (ENERGY)				-0.188	
				(-4.19)*	
Financial services (FINSERV)					0.142
					(5.22)*
N	1023	458	459	1023	1023
χ^2	2047.9	873.4	875.6	3049	3208
P	0.000	0.000	0.000	0.000	0.000

Accordingly a multivariate regression models were then run including all variables.

The results are shown in Table 4.4.

Table 4.4: Multivariate regressions

	Regression coefficient (T stat)
Market capitalisation	-.06557
	(-4.60020)*
Income gearing	0.00610
	(0.16453)
Net profit margin	0.02490
	(0.42202)
Energy	-0.02391
	(-0.34494)
Financial services	0.01055
	(0.14962)
N	421
χ^2	612.121
P	0.000

From this result we see a different picture with only market capitalisation as the only statistically significant variable. This again suggests that the higher the market capitalisation, the less likely the company is to pass the screen. Market capitalisation has such a dominant effect that it hides the effects of all the other variables, whether they be positive or negative.
But the univariate regressions do suggest that other variables may have explanatory power. Accordingly, those variables that seemed to possibly relate to the pass/fail outcome were entered into the regression in a pair-wise form with market capitalisation. These are reported in tables 4.5 to 4.8.

Please note that the sample sizes change because of missing observations on some variables. Datastream did not provide every datapoint needed.

Table 4.5: Pair-wise regression of Energy and Market Capitalisation

Variable	Regression coefficient (T stat)
Market capitalisation	-0.19940
	(-17.60189)*
Energy	-0.05011
	(-1.10152)
N	1023
χ^2	2088.175
P	0.000

Table 4.5 shows again that higher market capitalisation means less likelihood of a company passing the screen. There is no statistical significance for the relationship between energy companies and passing the screen.

Table 4.6: Pair-wise regression of financial services and market capitalisation

Variable	Regression coefficient (T stat)
Market capitalisation	-0.19606
	(-17.40477)*
Financial services	0.06160
	(2.22692) *
N	1023
χ^2	2087.126
P	0.000

Table 4.6 shows a statistically significant relationship between market capitalisation and not passing the screen, and shows that financial services are likely to pass the screen (also statistically significant).

Table 4.7: Pair-wise regression of income gearing and market capitalisation

Variable	Regression coefficient (T stat)
Market capitalisation	-0.25311
	(-11.46748)*
Income gearing	0.00528
	(0.17955)
N	458
χ^2	489.924
P	0.125

Table 4.7 shows again a statistically significant link between market capitalisation and passing the screen, but no significance for income gearing.

Table 4.8: Pair-wise regression of net profit margin and market capitalisation

Variable	Regression coefficient (T stat)
Market capitalisation	-0.23035
	(-11.13216)*
Net profit margin	0.09330
	(1.86982)**
N	459
χ^2	544.888
P	0.003

** Significance at the 10% level (1.65 is the cut-off)

Table 4.8 shows that net profit margin was positive suggesting that the companies with high profit margins were more likely to pass the screen. This was only significant at the 10% level. Again, market capitalisation showed a significant relationship.

A regression including only those variables that were significant in the pairwise regressions was undertaken (Table 4.9).

Table 4.9: Regression of significant indicators

Variable	Regression coefficient (T stat)
Market cap	-.23256
	(-11.02548)*
Net profit margin	0.08791
	(1.73765)**
Financial services	0.07603
	(1.34706)
N	459
χ^2	546.521
P	0.002

The results show that the significance of net profit margin is reduced. It still lies within the 10% level (2 tailed). Financial services, however, falls below the accepted 10% level.

We can speculate that the only significant variables then are the first two (market capitalisation and net profit margin). It may also be that the financial services and net profit margin are actually correlated to some extent, which means that only one should be retained.

With this in mind table 4.10 reports the Pearson correlation coefficient[19] for each pair of independent variables used in the full multivariate regression. The scores of less than 0.5 suggest no correlation between the various pairs and therefore it is legitimate to say that both market capitalisation and net profit margin (despite its low significance) can be retained..

Table 4.10: Pearson correlation between each indicator

	Financial Services	Net Profit Margin	Market capitalisation
Financial Services	--	0.213	-0.201
Net Profit Margin	0.213	--	-0.08
Market capitalisation	-0.201	-0.08	--

[19] Pearson Correlation Coefficient: A measure of linear association between two variables. Values of the correlation coefficient range from -1 to 1. The sign of the coefficient indicates the direction of the relationship, and its absolute value indicates the strength, with larger absolute values indicating stronger relationships.

4.6 Discussion

Large companies were less likely to pass the screen than small companies. Market capitalisation was the only market-based size indicator in this group. It is defined as the number of shares times the value of each share. This indicator is commonly used to grade companies by size e.g. the Russell 1000 and FTSE share indices. However, it reveals nothing about the book value of the firm or how resources are distributed within the firm. It was hypothesised that a high market capitalisation would result in a greater likelihood of passing the screen because such companies have a high profile as well as, generally, a valuable brand to be protected. Also it can be assumed that they are wealthy firms with resources available for spending on CSR. The data analysis showed that the hypothesis can be rejected: high market capitalisation was more likely to lead to failing the screen. It may be that companies with large market capitalisation lag in their CSR because they are old well-established companies that are only opting into CSR belatedly, if at all. They have a long way to go to catch up with younger, smaller firms. A more likely reason for their failure may be that they are very large and diverse (US companies grow through acquisition rather than organically), and thus are likely to be working in at least one area that will fail them. Or they are likely to be working in a variety of countries and are exposed to a greater variety of risks including human rights and environmental regulations that are different from home. In the Calvert Social Index Universe, the largest 170 companies as measured by market capitalisation, fail the screen. It should be noted that even when the energy companies, a number of which are among the largest companies, are removed from the equation, this does not change the effect of market capitalisation on a company's likelihood of passing or failing. Thus, large companies are more likely to fail the screen than small companies. Hypothesis 1 was rejected. There are additional reasons for large market capitalisation companies to have lower pass rates than small market capitalisation companies. There are more data on the larger companies, or they are older and have had more time to make mistakes. For example, a new technology start-up company will be likely to have a low market capitalisation in relation to an older, brick and mortar firm. Many technology companies passed the screens when the Calvert technology fund was launched a few years ago; there was simply no information on most of the start-ups. A few years later, it became clearer however that this industry had some problems with diversity and workplace practices generally. As they matured and developed more lawsuits emerged and they were less likely to pass the screens.

Companies with high net profit margins were more likely to pass the screen. Net profit margin was defined as net profit divided by net revenues. This ratio is an indication of how effective

a company is at cost control. The higher the net profit margin, the more effective the company is at converting revenue into actual profit. This is an attribute of a well-managed firm. Past literature shows a link between good management and CSR. Hypothesis 2 can be accepted.

There was no statistically significant relationship between passing the screen and high income gearing. Hypothesis 3 was rejected.

There was no statistically significant result for the relationship between passing the screen and companies in the energy sector. Hypothesis 4 was rejected.

Financial companies were more likely to pass the screen than other companies, this result was statistically significant. Hypothesis 5 was accepted. There is no screen bias for the financial services industry and the existence of the Community Reinvestment Act, means that companies can overcomply with the law and go beyond the legal requirements for investing in low-income communities which gives them a higher CSR score.

The results did not provide a highly complex story of the reasons for passing or failing the screen. The three variables seem to have some significance with only market capitalisation and net profit margin having a strong significance and financial services barely significant.

It is possible that these variables could enter the regression in some other functional form. For example some of these variables that have positive impacts on passing a screen may become negative at some critical level of firm performance (or vice versa). However, we have no strong hypothesis for supposing this to be the case.

4.7 Conclusion

Companies with small market capitalisations were more likely to pass the Calvert social and environmental screens than other companies. Companies in the financial services sector were more likely to pass than other companies and companies with high net profit margins were more likely to pass the screen.

Large US Companies are more likely to have public data available that show that they are not socially responsible. I.e., they are more likely to have violated federal regulations on any number of screens, or to have lost several lawsuits on pertinent issues. This reduces their chances of passing Calvert's screens. A second contributing factor to this failure risk for the largest US companies is that most of them have grown through acquisition and in so doing have become involved in a wide range of activities, some of which leave them liable to

automatic exclusion from Calvert's Universe. Further, large companies are likely to be working overseas in countries with less stringent legislation than in the US therefore leaving companies at risk of being involved in human rights violations and less than perfect pollution control. However, Calvert does try to hold companies to high, but not impossible, standards in developing countries. There is just less data available on corporate activities in those countries. Finally it should be noted that American companies have realised that by moving their manufacturing plants abroad, they can lower their measurable toxic chemical emissions data at home, and thus get a higher score on their US environmental impact in the screen. This may not improve the environmental conditions around the new plant location, but it can somehow fit in with the various pollution quotas that countries can trade off with each other, as implicitly if not categorically explicitly allowed by the various international environmental conventions.

Company size (market capitalisation), sector (financial services), and financial performance (net profit margin) can drive CSR or the likelihood of a company passing a social and environmental screen such as Calvert's. Companies such as Calvert, can use this information to concentrate their research activities on companies that are likely to pass a screen. These would be companies with smaller market capitalisations, those in the financial services and those with strong profit margins.

5.0 What is the effect of passing an SRI screen on the financial performance of companies?

5.1 Introduction

The objective of this chapter was to assess the effect of passing a Socially Responsible Investment (SRI) screen on the financial performance of companies.

Research and investment groups select a company for inclusion in a SRI or screened fund based on its social and environmental performance as well as on its financial performance. There are two forms of screens: negative (or avoidance) screens, and positive screens. Negative screens restrict investments by avoiding sectors that the client has defined as unacceptable. Typical examples of such sectors are weapons manufacture, alcohol, tobacco, gambling, nuclear power and pornography. Typical clients for these types of screens are church-based ones. Positive screens select companies from a wider range of sectors. The companies must demonstrate policies and activities of a socially or environmentally responsible nature: for example, positive relationships between employer and employee or codes to minimise negative impact on the environment. Positive screening is the process of actively searching for companies in which to invest, and which reflect the values of the investor through leadership in product design, policies, environmental practices, and human rights. A common form of positive investing is choosing to invest in industry leaders despite the reputation of the industry as a whole, with the hope that the standard of business will be raised in order to compete with the corporate social responsibility leaders within a particular industry (Anon 2003c). This is known as "best in class" socially responsible investment (SRI) and may include some of the traditionally taboo sectors such as tobacco and alcohol. Typical clients for such investments are young, female, and concerned about the environment.

Proponents of screened funds argue that their returns are as least as high as those of unscreened funds. Sceptics argue that screened funds cannot perform as well as normal funds because they screen out consistently well performing sectors such as alcohol and tobacco (Barfly 2003; Luck & Wood 1992; Anon 2003d). The question to be answered is: does the application of social screens affect financial performance? Corson & van Dyck (1992) in Snyder & Collins (1993) reviewed the financial performance of three screens: the Domini 400 social index, a review by US Trust Company of Boston and the Covenant 200. Each of these combined a number of social screens. They found that all three tracked the Standard & Poor

500[20] closely and concluded: "it appears that it is traditional investment management skills that most directly affect financial performance". I.e. there was no detriment to the funds for being made up of screened companies.

One of the largest United States asset management companies offering screened funds is the Calvert Group (see chapter 4 for information about Calvert). This study analyses Calvert's dataset of screened companies from the last 3 years. Information on how the Calvert Social Index Fund has performed since inception is available from Calvert[21]. This fund was constructed using companies in the CSIU. Its performance is compared to the Lipper Large Cap Average (an index or benchmark supplied by Lipper, a Reuters company[22]).

5.2 Background

As has been discussed in earlier chapters, there have been over 100 studies examining the relationship between CSR and financial performance. In the majority of these studies the CSR proxy is on an ordinal scale. Companies are ranked, for example on a scale from 1 to 5 where 1 is a low CSR score and 5 is a high CSR score. Only a small number of studies classify companies' CSR status on a nominal scale i.e. where a company is either socially or environmentally responsible or not (Conte, Blasi, Kruse, & Jampani 1996;Edwards 1998;Pava & Krausz 1996;Snyder & Collins 1993;Ziegler, Rennings, & Schroder 2002). This nominal scale can be used for calculations using dummy variables.

An example of a study using a nominal scale is Conte, Blasi, Kruse, & Jampani (1996). They carried out an analysis to compare the returns of companies with employee stock ownership plans (ESOP) with those with none. Large ESOP firms showed marginally higher returns. Returns were higher, on average, for companies that sponsored an ESOP compared to those that did not. Higher returns prevailed even after controlling for risk. The indicator used was annual market return.

Edwards (1998) compared the financial performance of firms approved by the Jupiter Environmental Research Unit for its Ecology fund compared to companies that had not been screened and had an unknown environmental performance. For comparison, for each green company, three to five companies of similar profile and from the same sector were identified from a list of companies of unknown green status (i.e. non-green). In the second stage of the analysis, from the non-green companies identified, the company showing the best financial

[20] Standard and Poor are a provider of investment information. The Standard and Poor 500 is an index of the USA's 500 largest companies by market capitalisation. It is also known as the S & P 500.
[21] http://www.calvert.com/pdf/pros-csif.pdf
[22] Lipper provide investment information in the form of indices. www.lipperweb.com

performance was selected. This was to compare it to its matching green company. The profile characteristics used to match companies included: subsector, turnover, capitalisation, capital expenditure per share, and percentage of export turnover. The green companies outperformed the non-green companies for two indicators: return on equity (ROE) and return on capital employed (ROCE).

Pava & Krausz (1996) examined the long-term financial performance of a group of 53 firms that were identified by the Council on Economic Priorities as socially responsible. They compared their financial performance with a control sample matched by size and industry. Results were mixed, though on the whole the socially responsible firms performed no worse than the control group. A broad range of variables were used: market based (market return, price to earning ratio, market to book value); accounting based (return on assets, ROE, earnings per share); measures of risk (current ratio, quick ratio, debt to equity ratio, interest coverage, Altman's Z score, market beta); and other measures (capital investment intensity, size, number of lines of business, dividend payout ratio).

Snyder & Collins (1993) constructed an environmental portfolio by screening the Standard & Poor 500 with four environmental criteria. They then compared the companies that passed the screen with those that did not. Results showed that there was no financial penalty for the environmental screen. The performance indicator used was annual price return.

Ziegler, Rennings, & Schroder (2002) regressed average monthly stock returns on environmental and social performance variables. These variables stemmed from research performed by the Swiss bank Sarasin. They assigned values from 1-5 to each company they screened. They recoded the data so that if a company had scored 5 for a high environmental score, it was coded 1, and all other scores were coded 0. Results show an increasing environmental sector performance has a significantly positive effect on the average monthly stock return. However, an increasing social sector performance has a negative effect on the average monthly stock return.

Three financial performance indicators were selected for the analysis. These were Return on Equity, Earnings per Share and Market to Book Ratio. The reason for choosing these indicators was that they provided a mix of accounts and market based indicators. These three indicators have been used extensively in this type of analysis by previous researchers. Earnings per share was used by Simerly (1994), it measures the concern of management for maximising stockholders' wealth. This has been considered by investors as a key measure of

a firm's future stock performance. Data was available for these indicators for the time series needed, this contributed to the decision to use these indicators.

Based on this background information, this study tests the hypothesis that companies with good corporate social performance, as denoted by passing a SRI screen, perform better financially than companies with poor corporate social performance, as denoted by failing a SRI screen.

5.3 Methods and Data

Datastream provided the financial data used in this paper. Market to book ratio and earnings per share (EPS) data were downloaded for each month for each company in the sample from 1st January 2000 to 1st May 2003 and for the same day of each month. Return on equity (ROE) was downloaded for four years as an annual time series on 1st January 2000, 2001, 2002 and 2003. Definitions of the financial indicators are given in Table 5.1.

Table 5.1: Definitions of financial indicators

Financial indicator	Definition
Return on equity (ROE)	A measure of how well a company used reinvested earnings to generate additional earnings, equal to a fiscal year's after-tax income (after preferred stock dividends but before common stock dividends) divided by book value, expressed as a percentage. It is used as a general indication of the company's efficiency; in other words, how much profit it is able to generate given the resources provided by its stockholders. Investors usually look for companies with returns on equity that are high and growing. (investorwords.com)
Earnings per share (EPS)	Total earnings divided by the number of shares outstanding. Companies often use a weighted average of shares outstanding over the reporting term. EPS can be calculated for the previous year ("trailing EPS"), for the current year ("current EPS"), or for the coming year ("forward EPS"). Note that last year's EPS would be actual, while current year and forward year EPS would be estimates. (investorwords.com)
Market to book ratio	A stock's capitalisation divided by its book value. The value is the same whether the calculation is done for the whole company or on a per-share basis. This ratio compares the market's valuation of a company to the value of that company as indicated on its financial statements. The higher the ratio, the higher the premium the market is willing to pay for the company above its hard assets. A low ratio may signal a good investment opportunity, but the ratio is less meaningful for some types of companies, such as those in technology sectors. This is because such companies have hidden assets such as intellectual property that are of great value, but not reflected in the book value. In general, price to book ratio is of more interest to value investors than growth investors. (investorwords.com)

The datasets obtained from Calvert were the Calvert Social Index Universe for 14th April 2000, and for 24th March 2003. The pass/fail statuses of the companies in the Calvert index were set up as dummy variables: 1 for pass, 0 for fail. Companies whose status changed between April 2000 and March 2003 were removed. This was because the date on which the company changed status was arbitrary, it was not based on any specific change in the company's activities, it was based on when Calvert actually carried out a review of the company. The original datasets each contained over 1000 companies, as they were based on

the Russell 1000[23]. When the two datasets were consolidated the ensuing dataset reduced to 575 companies. This is because companies appearing in the 2000 dataset do not necessarily appear in the 2003 dataset. The financial performance data needed for the study were not available for all the companies, this further reduced the dataset to 514 companies.

The dependent variables were the financial performance indicators: return on equity, market to book ratio, and earnings per share. The independent or explanatory variables were SRI status and sector.

It was decided to run a univariate analysis of variance (ANOVA) to investigate the relationship between SRI status and sector (the explanatory factors) and financial performance (the dependent variables). Analysis of variance is used to test for significant differences between means. In this case between the SRI status and each financial indicator in turn and between SRI status and sector. This method was used in this chapter as it had been successfully been used by previous researchers for similar data (Wokutch and Spencer, 1987).

5.4 Results

The Calvert dataset contained 514 companies, of these 213 companies failed the screen and 300 passed. Each company in the dataset was associated with its sector. There were 12 sectors.

Table 5.2 shows that companies in the energy, auto, consumer staple, integrated oils, materials and processing, other, and utilities sectors are more likely to fail the screen than companies in the non-polluting sectors such as healthcare, financial services and technology. Therefore, sector must be taken into account when analysing the relationship between status and financial performance.

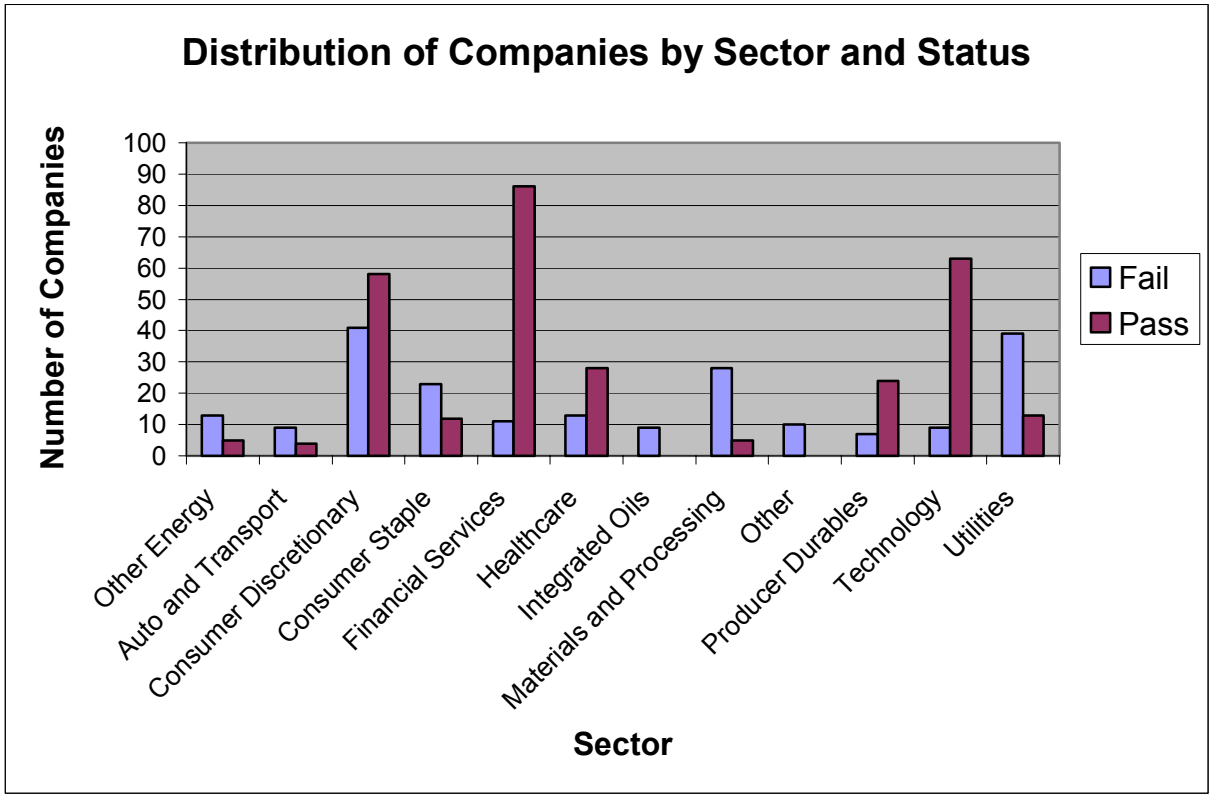
[23] See chapter 4 for definition of Russell 1000 and Calvert methods

Table 5.2: Distribution of companies by sector and by status (n=514)

Sector	Sector name	No. of companies in each sector	No. companies Fail	No. companies Pass	% Fail	% Pass
1	Other Energy	18	13	5	72	28
2	Auto and Transport	13	9	4	69	31
3	Consumer Discretionary	99	41	58	41	59
4	Consumer Staple	35	23	12	66	34
5	Financial Services	97	11	86	11	89
6	Healthcare	41	13	28	32	68
7	Integrated Oils	9	9	0	100	0
8	Materials and Processing	33	28	5	85	15
9	Other	10	10	0	100	0
10	Producer Durables	31	7	24	23	77
11	Technology	72	9	63	12.5	87.5
12	Utilities	53	39	13	74	26

Figure 5.1 provides a graphical representation of the number of companies in each sector that pass and fail. Some sectors really stand out as having much greater numbers of passes than fails, for example consumer discretionary, financial services, and technology.

Figure 5.1: Distribution of companies by sector and status



5.4.1 Results for Return on Equity

Four univariate ANOVA were carried out for status, sector and ROE for the four years of data available. The results are shown in table 5.3 in the annex. These show that there is no statistical significance in the relationship SRI status and ROE.

Neither is there a statistically significant relationship between sector and ROE.

There is no evidence of an interaction between status and sector. The relationship between sectors is the same for both statuses.

5.4.2 Results for Earnings per Share

Multiple univariate ANOVA were carried out for status, sector and EPS for each month from January 2000 to May 2003. The results are shown in table 5.4 in the annex. The results varied over time. Results for the first 16 months were significant at the 5% level ($p<0.05$). The remainder of the results was only significant at the 10% level ($p<0.1$).

There was a significant relationship between Sector and EPS at the 5% level for the whole time period investigated.

There was no evidence of a status and sector interaction. The relationship between sectors was the same for both statuses.

5.4.3 Results for Market to Book Ratio

Multiple univariate ANOVA were run for status, sector and market to book ratio for the months January 2000 to May 2003. The results are shown in table 5.5 in the annex. There was a statistically significant relationship between SRI status and market to book ratio for the 12 months June 2000 to May 2001. For the remainder of the period, the relationship between status and market to book ratio was not statistically significant.

For the same 12 month period, there was a significant relationship, at the 5% level, between sector and market to book ratio.

Between November 2000 and May 2001 there was a statistically significant relationship in the interaction between sector and status. This means that the relationship between the sectors was not the same for both statuses.

5.5 Discussion

5.5.1 Return on Equity

The book based financial indicator ROE has been used by numerous researchers as an indicator of financial performance in CSR/financial performance studies. ROE can also be defined as:

Net Income / Book Value of Shareholders' Equity = ROE

However, net income is not a reliable measure of corporate performance. Therefore the outcome of the formula for ROE may also be unreliable for determining success or corporate value. However the formula keeps showing up in many annual reports. The degree to which ROE overstates the economic value depends on at least 5 factors:

- length of project life (the longer, the bigger the overstatement)
- capitalisation policy (the smaller the fraction of total investment capitalised in the books, the greater will be the overstatement)
- the rate at which depreciation is taken on the books (depreciation rates faster than straight-line basis will result in a higher ROE)
- the lag between investment outlays and the recoupment of these outlays from cash inflows (the greater the time lag, the greater the degree of overstatement)
- the growth rate of new investment (faster growing companies will have lower ROE's)

Further, ROE is sensitive to leverage: assuming that proceeds from debt financing can be invested at a return greater than the borrowing rate, ROE will increase with greater amounts of leverage (Jonge 2003d).

The above considerations give a possible explanation of why ROE, though widely used, may not be a good indicator of financial performance and may explain why the relationship between passing the screen and ROE was not statistically significant. The relationship between sector and ROE was not significant either. This may indicate that the fault lies with the ROE data. Only four data points are used in the analysis, because the data were only available at yearly intervals. These four points were probably not sufficient for a robust statistical analysis.

5.5.2 Earnings per Share

There was a statistically significant relationship between companies passing the screen and EPS, but the results were not entirely satisfactory as the relationship was significant at the 5% level for the first 16 months and then only at the 10% level for the rest of the time period. This may be because the market was behaving in a normal way for those first 16 months and was subsequently subject to a lot of disturbance (September 11th, Enron and Worldcom accounting scandals, and general global economic downturn). This could account in part for the relationship between status and EPS becoming less significant. As it is, the relationship between SRI status and EPS is a fragile one. There are many explanatory variables for

fluctuations in EPS, and SRI status is one of the least robust ones. During difficult market periods, the influence of SRI status will decrease and the influence of other explanatory variables will increase.

EPS is traditionally used for determining corporate value. However, accounting (reported) EPS has always been a bad indicator of corporate value. The major reasons why EPS (accounting profit) has failed to measure the economic value of firms reliably are:

- Alternative accounting methods may be employed
- Risk is excluded (both business risk and financial risk are not accounted for in annual reports)
- Investment requirements are excluded (changes in the working capital are not considered in reported earnings)
- Dividend policy is not considered (dividend decreases will show increased reported earnings but are in fact value neutral)
- The time value of money is ignored (no present value calculation in reported earnings)
- The increased role intangibles play in our economic system, which has moved from an industrial economy towards a services and knowledge oriented economy.

(Jonge 2003b)

The effect of Sector on EPS was investigated further as the relationship between Sector and EPS was statistically significant throughout the time period. Two sectors were chosen, to be representative of "clean" and "dirty" sectors. Financial services is a non-polluting clean sector, and utilities are known to be in a polluting, dirty sector.

Figure 5.2 shows that EPS is greater but fluctuates far more for companies that fail the screen than for those that pass. Pass companies stayed above the baseline and performed at a more constant level.

Figure 5.2: Sector effect, financial services and EPS

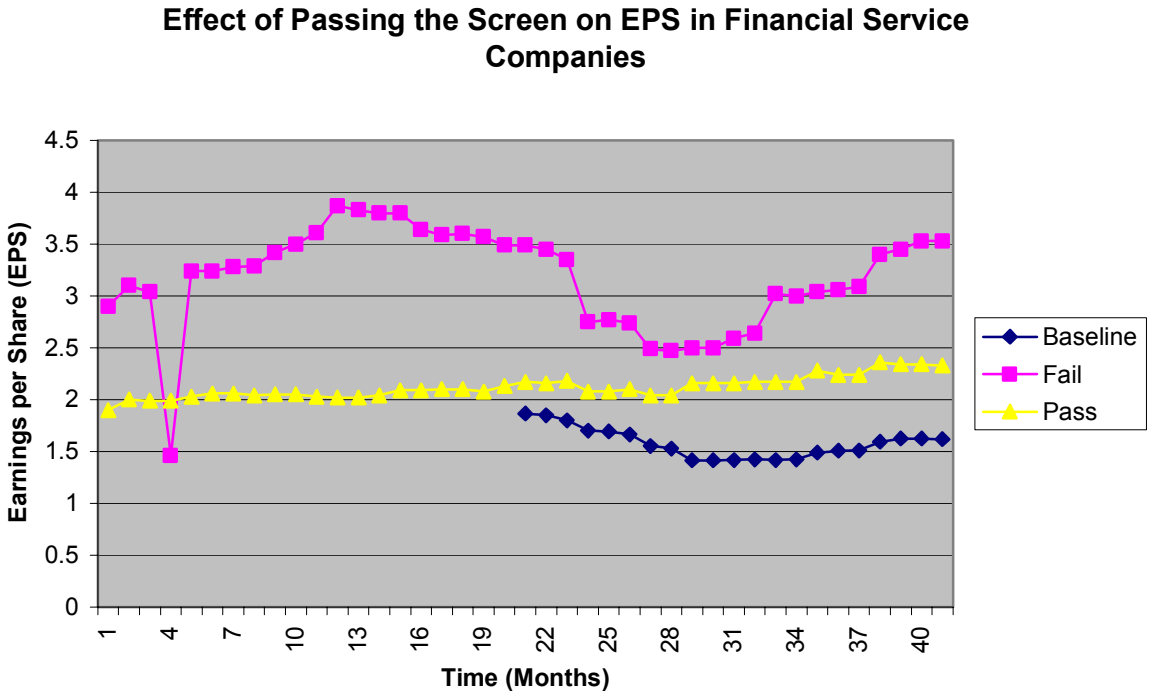
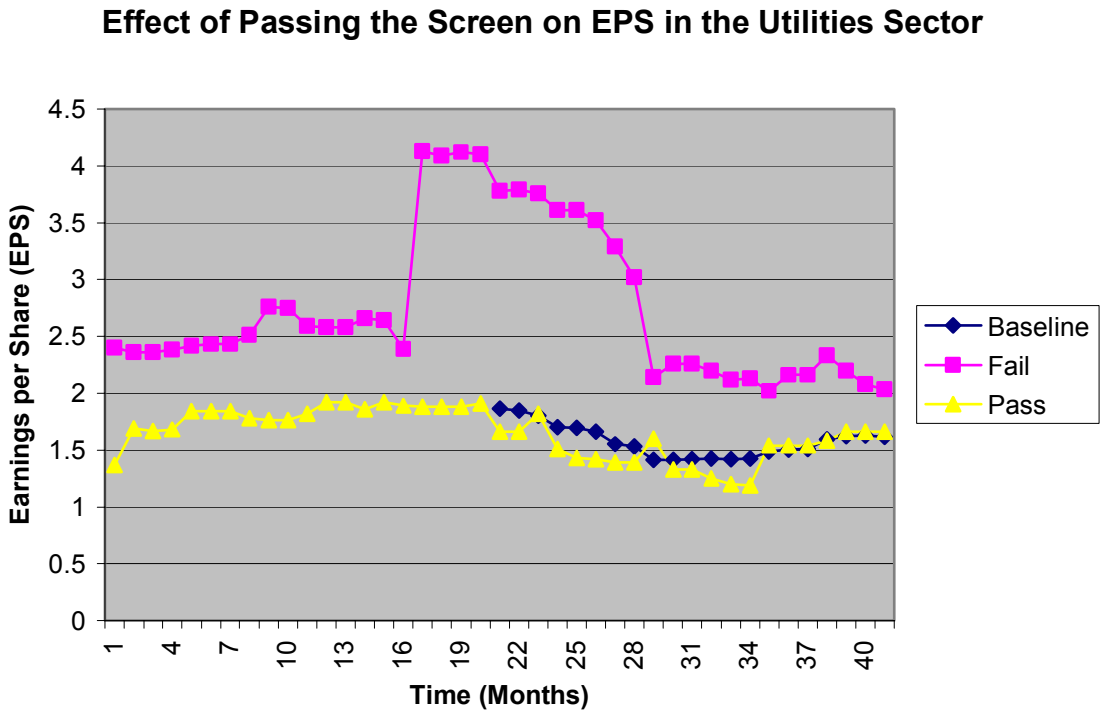


Figure 5.3 shows that the companies that pass the screen follow the baseline. Companies that fail tend to have a higher EPS and greater fluctuations.

Figure 5.3: Utilities and EPS



The trends of the relationships are not in the direction that we would wish, but are nonetheless statistically significant and must be reported. We would like to be able to say that EPS is higher for passes than fails in both the financial sector and utilities sector. This is not the case, but again may be a reflection of the fact that there is more than one variable influencing EPS and it is not just SRI status or sector alone.

5.5.3 Market to Book Ratio

There was a statistically significant relationship between passing the screen and market to book ratio for seven months. This coincides with the statistically significant relationship between status and EPS. It could therefore be explained in the same way. Status is a possible explanatory variable for changes in market to book ratio during stable markets. When the markets behave in an abnormal and dramatic manner, as they did in late 2001 and 2002, then status is no longer a robust enough explanation for changes in market to book ratio.

The relationship between sector and market to book ratio is significant for the same period as described above. Again, the drastic change in the market could explain why a previously significant relationship may have switched to an insignificant relationship as other explanatory variables than sector became more pertinent.

5.5.4 The Calvert dataset

Initially, this study was supposed to be based on a panel data. The Calvert dataset was originally thought to lend itself to panel data analysis. This means that the data is both longitudinal and cross-sectional. The data varies over time, i.e. the dataset would have had to include the companies that switched in order to show how changes in status over time affect the financial indicators. Unfortunately, the data was not available or suitable to be a panel data. Firstly, the dates on which decisions were made to flip or switch companies from pass to fail or vice versa were arbitrary. The dates were those of committee meetings and had nothing to do with the dates on which companies may have acted in responsible or irresponsible ways. However, even these arbitrary dates could have been useful in themselves, but there were not enough datapoints (flips) to make a panel data with the flips information. Only sixty companies flipped over the time period for a dataset of over 500. The second problem was that even if those companies had been included in the dataset, financial data were not available for them. This appears to be a quirk of Datastream and of the Calvert dataset. Datastream provides financial data on the Russell 1000 and the Calvert SIU is modelled on Russell 1000, but the two lists do not tally exactly, and some companies that are on the Calvert SIU do not appear in Datastream. Some companies do not provide data to Datastream, but to rival financial data providers, e.g. Bloomberg or Reuters.

5.6 Conclusion

Previous studies have shown the difficulties in proving a strong and positive relationship between corporate social performance and financial performance, this study is no exception. The Calvert dataset is large and therefore useful for conducting analyses. However, the time period over which the analyses were carried out may be too short to show strong trends in financial performance. The three financial indicators selected have all been tried and tested in previous studies. In this study there is only one definite relationship that is proved. This is the relationship between passing the screen and higher earnings per share. The results for return on equity and market to book ratio are not satisfactory enough to draw conclusions.

5.7 Annex

Table 5.3: SRI Status, Sector and Return on Equity

Source	Dependent Variable (by time period)	Type III Sum of Squares	df	Mean Square	F	Sig.
STATUS	ROE1	1129.308	1	1129.308	.475	.491
	ROE2	4.568E-03	1	4.568E-03	.000	.999
	ROE3	944.783	1	944.783	.005	.946
	ROE4	3578.538	1	3578.538	.552	.458
SECTOR	ROE1	31263.114	11	2842.101	1.195	.288
	ROE2	83992.016	11	7635.638	1.723	.066
	ROE3	611410.355	11	55582.760	.274	.990
	ROE4	112312.396	11	10210.218	1.576	.103
STATUS * SECTOR	ROE1	10129.820	9	1125.536	.473	.892
	ROE2	39159.866	9	4351.096	.982	.454
	ROE3	471321.373	9	52369.041	.258	.985
	ROE4	52708.492	9	5856.499	.904	.521

Table 5.4: Status, sector and earnings per share

Source	Dependent Variable (by time period)	Type III Sum of Squares	df	Mean Square	F	Sig.
STATUS	EPS	12.000	1	12.000	5.116	.024
	VAR00012	10.459	1	10.459	4.257	.040
	VAR00013	11.600	1	11.600	4.743	.030
	VAR00014	12.345	1	12.345	5.037	.025
	VAR00015	11.733	1	11.733	4.945	.027
	VAR00016	11.168	1	11.168	4.679	.031
	VAR00017	13.164	1	13.164	5.485	.020
	VAR00018	16.260	1	16.260	6.985	.008
	VAR00019	17.592	1	17.592	6.534	.011
	VAR00020	18.622	1	18.622	6.882	.009
	VAR00021	28.425	1	28.425	11.508	.001
	VAR00022	33.623	1	33.623	12.860	.000
	VAR00023	30.025	1	30.025	11.518	.001
	VAR00024	26.035	1	26.035	10.726	.001
	VAR00025	30.023	1	30.023	12.256	.001
	VAR00026	22.545	1	22.545	10.453	.001
	VAR00027	34.393	1	34.393	3.060	.081
	VAR00028	37.753	1	37.753	3.340	.068
	VAR00029	35.957	1	35.957	3.185	.075
	VAR00030	36.333	1	36.333	3.239	.073
	VAR00031	24.379	1	24.379	2.684	.102
	VAR00032	25.121	1	25.121	2.769	.097
	VAR00033	23.044	1	23.044	2.651	.104
	VAR00034	20.131	1	20.131	2.583	.109
	VAR00035	21.422	1	21.422	2.746	.098
	VAR00036	20.999	1	20.999	2.720	.100
	VAR00037	12.575	1	12.575	1.690	.194
	VAR00038	10.370	1	10.370	2.543	.111
	VAR00039	3.907	1	3.907	2.734	.099
	VAR00040	7.048	1	7.048	4.618	.032
	VAR00041	6.534	1	6.534	4.228	.040
	VAR00042	5.057	1	5.057	3.101	.079
	VAR00043	7.109	1	7.109	4.285	.039
	VAR00044	7.329	1	7.329	4.384	.037
	VAR00045	3.508	1	3.508	1.864	.173
	VAR00046	3.685	1	3.685	1.993	.159
	VAR00047	3.872	1	3.872	2.085	.149
	VAR00048	6.147	1	6.147	2.425	.120
	VAR00049	5.974	1	5.974	2.465	.117

	VAR00050	5.984	1	5.984	2.478	.116
	EPSEND	5.311	1	5.311	2.190	.140
SECTOR	EPS	105.602	11	9.600	4.093	.000
	VAR00012	113.958	11	10.360	4.216	.000
	VAR00013	104.841	11	9.531	3.897	.000
	VAR00014	106.181	11	9.653	3.939	.000
	VAR00015	116.420	11	10.584	4.460	.000
	VAR00016	115.776	11	10.525	4.410	.000
	VAR00017	108.030	11	9.821	4.092	.000
	VAR00018	132.274	11	12.025	5.166	.000
	VAR00019	139.186	11	12.653	4.699	.000
	VAR00020	139.559	11	12.687	4.689	.000
	VAR00021	160.320	11	14.575	5.901	.000
	VAR00022	182.491	11	16.590	6.345	.000
	VAR00023	176.948	11	16.086	6.171	.000
	VAR00024	206.922	11	18.811	7.750	.000
	VAR00025	207.193	11	18.836	7.689	.000
	VAR00026	222.280	11	20.207	9.369	.000
	VAR00027	288.766	11	26.251	2.336	.008
	VAR00028	291.128	11	26.466	2.342	.008
	VAR00029	291.694	11	26.518	2.349	.008
	VAR00030	304.091	11	27.645	2.464	.005
	VAR00031	323.476	11	29.407	3.237	.000
	VAR00032	327.139	11	29.740	3.278	.000
	VAR00033	349.429	11	31.766	3.655	.000
	VAR00034	277.659	11	25.242	3.239	.000
	VAR00035	275.312	11	25.028	3.208	.000
	VAR00036	248.209	11	22.564	2.923	.001
	VAR00037	153.529	11	13.957	1.876	.040
	VAR00038	146.317	11	13.302	3.262	.000
	VAR00039	104.106	11	9.464	6.623	.000
	VAR00040	97.500	11	8.864	5.808	.000
	VAR00041	101.542	11	9.231	5.973	.000
	VAR00042	89.200	11	8.109	4.972	.000
	VAR00043	104.694	11	9.518	5.737	.000
	VAR00044	102.565	11	9.324	5.578	.000
	VAR00045	123.907	11	11.264	5.985	.000
	VAR00046	126.888	11	11.535	6.239	.000
	VAR00047	128.448	11	11.677	6.287	.000
	VAR00048	129.121	11	11.738	4.632	.000
	VAR00049	123.631	11	11.239	4.638	.000
	VAR00050	125.411	11	11.401	4.722	.000
	EPSEND	125.800	11	11.436	4.715	.000
STATUS * SECTOR	EPS	22.906	9	2.545	1.085	.372
	VAR00012	21.998	9	2.444	.995	.443
	VAR00013	22.594	9	2.510	1.026	.417
	VAR00014	25.313	9	2.813	1.148	.327
	VAR00015	24.707	9	2.745	1.157	.321
	VAR00016	23.646	9	2.627	1.101	.360
	VAR00017	23.413	9	2.601	1.084	.373
	VAR00018	24.302	9	2.700	1.160	.319
	VAR00019	25.511	9	2.835	1.053	.397
	VAR00020	26.482	9	2.942	1.087	.370
	VAR00021	28.107	9	3.123	1.264	.254
	VAR00022	40.854	9	4.539	1.736	.078
	VAR00023	35.703	9	3.967	1.522	.137
	VAR00024	33.488	9	3.721	1.533	.133
	VAR00025	32.784	9	3.643	1.487	.150
	VAR00026	28.640	9	3.182	1.475	.154
	VAR00027	57.131	9	6.348	.565	.826
	VAR00028	57.165	9	6.352	.562	.828
	VAR00029	56.896	9	6.322	.560	.830
	VAR00030	61.526	9	6.836	.609	.789
	VAR00031	68.359	9	7.595	.836	.583
	VAR00032	67.847	9	7.539	.831	.588
	VAR00033	56.218	9	6.246	.719	.692
	VAR00034	54.162	9	6.018	.772	.642

	VAR00035	58.396	9	6.488	.832	.587
	VAR00036	56.248	9	6.250	.810	.608
	VAR00037	41.968	9	4.663	.627	.775
	VAR00038	33.955	9	3.773	.925	.503
	VAR00039	12.976	9	1.442	1.009	.432
	VAR00040	14.906	9	1.656	1.085	.372
	VAR00041	15.182	9	1.687	1.091	.367
	VAR00042	20.348	9	2.261	1.386	.191
	VAR00043	22.607	9	2.512	1.514	.140
	VAR00044	22.159	9	2.462	1.473	.155
	VAR00045	20.895	9	2.322	1.234	.272
	VAR00046	22.209	9	2.468	1.335	.216
	VAR00047	22.682	9	2.520	1.357	.205
	VAR00048	24.413	9	2.713	1.070	.383
	VAR00049	23.993	9	2.666	1.100	.361
	VAR00050	24.935	9	2.771	1.148	.327
	EPSEND	24.880	9	2.764	1.140	.333

Table 5.5: Status, Sector and Market to Book Ratio

Source	Dependent Variable (by time period)	Type III Sum of Squares	df	Mean Square	F	Sig.
STATUS	MARKBOOK	185.505	1	185.505	1.264	.261
	VAR00053	227.844	1	227.844	1.824	.177
	VAR00054	350.254	1	350.254	2.237	.135
	VAR00055	216.252	1	216.252	2.246	.135
	VAR00056	202.688	1	202.688	2.342	.127
	VAR00057	793.478	1	793.478	4.827	.028
	VAR00058	886.638	1	886.638	5.024	.025
	VAR00059	986.843	1	986.843	6.914	.009
	VAR00060	1077.058	1	1077.058	6.808	.009
	VAR00061	992.507	1	992.507	6.203	.013
	VAR00062	1018.997	1	1018.997	5.851	.016
	VAR00063	926.488	1	926.488	5.927	.015
	VAR00064	1112.864	1	1112.864	3.712	.055
	VAR00065	1098.557	1	1098.557	3.518	.061
	VAR00066	992.176	1	992.176	3.906	.049
	VAR00067	763.248	1	763.248	3.764	.053
	VAR00068	821.969	1	821.969	3.954	.047
	VAR00069	204.181	1	204.181	1.714	.191
	VAR00070	185.049	1	185.049	1.627	.203
	VAR00071	233.827	1	233.827	1.824	.177
	VAR00072	221.379	1	221.379	1.780	.183
	VAR00073	167.377	1	167.377	1.545	.214
	VAR00074	188.147	1	188.147	1.528	.217
	VAR00075	211.758	1	211.758	1.644	.200
	VAR00076	370.824	1	370.824	2.538	.112
	VAR00077	350.083	1	350.083	2.416	.121
	VAR00078	358.606	1	358.606	2.275	.132
	VAR00079	355.805	1	355.805	2.093	.149
	VAR00080	329.949	1	329.949	1.898	.169
	VAR00081	337.558	1	337.558	2.019	.156
	VAR00082	301.665	1	301.665	2.095	.148
	VAR00083	271.945	1	271.945	2.403	.122
	VAR00084	303.629	1	303.629	2.303	.130
	VAR00085	281.887	1	281.887	2.492	.115
	VAR00086	371.470	1	371.470	3.461	.063
	VAR00087	385.924	1	385.924	3.307	.070
	VAR00088	377.015	1	377.015	3.105	.079
	VAR00089	359.793	1	359.793	3.320	.069
	VAR00090	327.913	1	327.913	3.346	.068
	VAR00091	352.844	1	352.844	3.437	.064
	MARKBOOE	389.343	1	389.343	3.386	.066
SECTOR	MARKBOOK	1506.530	11	136.957	.933	.508
	VAR00053	1422.664	11	129.333	1.036	.413
	VAR00054	2668.947	11	242.632	1.550	.111

	VAR00055	1297.920	11	117.993	1.226	.267
	VAR00056	1340.600	11	121.873	1.408	.165
	VAR00057	5598.230	11	508.930	3.096	.000
	VAR00058	5650.174	11	513.652	2.911	.001
	VAR00059	3368.830	11	306.257	2.146	.016
	VAR00060	3407.927	11	309.812	1.958	.031
	VAR00061	3924.136	11	356.740	2.230	.012
	VAR00062	4853.208	11	441.201	2.533	.004
	VAR00063	4519.040	11	410.822	2.628	.003
	VAR00064	6324.397	11	574.945	1.918	.035
	VAR00065	6140.406	11	558.219	1.788	.053
	VAR00066	5867.030	11	533.366	2.100	.019
	VAR00067	4922.862	11	447.533	2.207	.013
	VAR00068	4400.600	11	400.055	1.924	.034
	VAR00069	1108.266	11	100.751	.846	.594
	VAR00070	985.589	11	89.599	.788	.652
	VAR00071	846.893	11	76.990	.601	.829
	VAR00072	835.996	11	76.000	.611	.820
	VAR00073	850.843	11	77.349	.714	.725
	VAR00074	796.121	11	72.375	.588	.839
	VAR00075	914.907	11	83.173	.646	.790
	VAR00076	673.169	11	61.197	.419	.948
	VAR00077	593.143	11	53.922	.372	.966
	VAR00078	482.021	11	43.820	.278	.990
	VAR00079	524.539	11	47.685	.281	.989
	VAR00080	500.524	11	45.502	.262	.992
	VAR00081	442.161	11	40.196	.240	.994
	VAR00082	337.406	11	30.673	.213	.997
	VAR00083	360.976	11	32.816	.290	.988
	VAR00084	359.895	11	32.718	.248	.994
	VAR00085	379.918	11	34.538	.305	.985
	VAR00086	347.558	11	31.596	.294	.987
	VAR00087	296.891	11	26.990	.231	.995
	VAR00088	296.029	11	26.912	.222	.996
	VAR00089	305.631	11	27.785	.256	.993
	VAR00090	286.929	11	26.084	.266	.991
	VAR00091	345.753	11	31.432	.306	.985
	MARKBOOE	367.787	11	33.435	.291	.988
STATUS * SECTOR	MARKBOOK	870.040	9	96.671	.659	.746
	VAR00053	656.994	9	72.999	.585	.810
	VAR00054	773.859	9	85.984	.549	.838
	VAR00055	500.057	9	55.562	.577	.816
	VAR00056	374.605	9	41.623	.481	.888
	VAR00057	1645.823	9	182.869	1.113	.352
	VAR00058	1501.195	9	166.799	.945	.485
	VAR00059	2361.824	9	262.425	1.838	.059
	VAR00060	1809.415	9	201.046	1.271	.250
	VAR00061	2242.162	9	249.129	1.557	.125
	VAR00062	3201.172	9	355.686	2.042	.033
	VAR00063	3198.567	9	355.396	2.274	.017
	VAR00064	5465.389	9	607.265	2.025	.035
	VAR00065	5040.363	9	560.040	1.794	.067
	VAR00066	5588.247	9	620.916	2.445	.010
	VAR00067	5129.326	9	569.925	2.811	.003
	VAR00068	4699.217	9	522.135	2.512	.008
	VAR00069	631.831	9	70.203	.589	.806
	VAR00070	711.054	9	79.006	.695	.714
	VAR00071	916.783	9	101.865	.795	.622
	VAR00072	981.583	9	109.065	.877	.546
	VAR00073	1006.895	9	111.877	1.033	.412
	VAR00074	1039.358	9	115.484	.938	.492
	VAR00075	971.103	9	107.900	.838	.582
	VAR00076	3121.710	9	346.857	2.374	.012
	VAR00077	3072.257	9	341.362	2.356	.013
	VAR00078	3011.224	9	334.580	2.122	.026
	VAR00079	3119.598	9	346.622	2.039	.034
	VAR00080	3233.820	9	359.313	2.067	.031

	VAR00081	3093.214	9	343.690	2.056 .032
	VAR00082	2797.116	9	310.791	2.159 .024
	VAR00083	2470.916	9	274.546	2.426 .011
	VAR00084	2806.316	9	311.813	2.365 .013
	VAR00085	2654.019	9	294.891	2.607 .006
	VAR00086	2434.571	9	270.508	2.520 .008
	VAR00087	2456.990	9	272.999	2.339 .014
	VAR00088	2611.205	9	290.134	2.389 .012
	VAR00089	2408.566	9	267.618	2.469 .009
	VAR00090	2164.842	9	240.538	2.454 .010
	VAR00091	2406.011	9	267.335	2.604 .006
	MARKBOOE	2691.992	9	299.110	2.601 .006

6.0 Intangible Assets, Reputation and CSR: Where Next for the Valuation of CSR?

6.1 Introduction

Three empirical studies have been carried out in this thesis to test the relationship between CSR and financial performance. Each study was carried out using a different dataset for CSR, different financial indicators, and different methodologies. In each case the results showed a positive relationship between CSR and financial performance. However, the results were not statistically as robust as we would have liked. Results from other researchers show similar anxiety about the strength of results. This state of affairs is due to a variety of reasons.

Social and environmental performance datasets varied enormously from study to study. In many cases the datasets were subjectively designed by a group of people, or by an organisation that had its own criteria. Some of these datasets were built using a wide range of criteria, both social and environmental, e.g. Calvert's social and environmental screen. Other datasets were designed with narrower criteria, only using one measure of social or environmental performance, e.g. companies with employee share ownership schemes, and companies without. Fox Gorte & Donge (2003) noted that inadequate proxies were available to quantify or represent social performance, which made links to financial value difficult.

The financial performance measures used in the studies also varied widely. Some studies used market based measures, others book based measures, and a third a combination of those two sets of measures. Some studies controlled for size, sector, research and development intensity etc. Others did not.

The studies also used a variety of methods, e.g. the Capital Asset Pricing Model, regressions, event study, each with more or less sophisticated statistical analysis of the results. Most studies used backward-looking methodologies, they examined how screened portfolios or datasets of companies with CSR attributes performed compared with unscreened portfolios or datasets of companies without CSR attributes, over some specified period in the past. Ziegler, Rennings, & Schroder (2002) found that the methods and time period of datasets, which they used, limited their ability to come up with strong statistical evidence. They would have preferred to be able to use longer time frames and lagged variables, i.e. the effect of environmental performance on economic performance one or more years later.

To have real value, measures of CSR should be forward looking, predicting which companies will have lower risks and liabilities and therefore be more valuable (Fox Gorte & Donge 2003).

This thesis and the many empirical studies discussed in it focused on financial performance indicators as the dependent variable in empirical studies of CSR and financial performance. In view of the difficulties that traditional finance techniques and econometrics have in providing a clear and statistically robust link between CSR and financial performance, this chapter discusses alternative indicators for valuing the returns to CSR. These are non-financial performance measures.

6.2 Non-financial performance measures and intangibles

Non-financial performance measures include research and development, technological know-how, patents, brand names, product quality, customer satisfaction, employee turnover, good communication, ability to innovate, and reputation. These are also called intangibles.

"Financial performance tells me what a company has already done. Non-financial performance tells me what it is likely to do." Senior U.S. Portfolio Manager[24]

The top ten UK non-financial performance measures according to Ernst and Young's "Measures that Matter" survey were: execution of corporate strategy, quality of corporate strategy, market position, management credibility, innovativeness, management experience, research leadership, quality of major business processes, global capability, ability to attract and retain talented people (Ernst and Young 2000).

Fox Gorte & Donge (2003) cited the know-how associated with sound environmental management and creation of extraordinary employee loyalty and esprit-de-corps as intangible assets.

A survey by the Department of Trade and Industry (DTI) found that UK companies cited the following intangible assets as essential ingredients for their company's success: relationships, knowledge, leadership and communication, culture and values, reputation and trust, skills and competencies, processes and systems (DTI 2001).

[24] Quoted in Ernst & Young, Measures that Matter, 2000

Intangibles are important for the economy as a whole, organisations, strategy, finance, and accounting. Due to certain factors, including increased competition from globalisation and deregulation, and the advent of information technology (notably the internet), the structures of corporations have changed. In the 1980s and 1990s, this combination of factors increased the relative significance of intangible assets, compared to their tangible peers, into the major value drivers of business. In 1978, 5% of all assets were intangible, in 1998 this rose to 72%, and in 2003, 75-85% of all assets were intangible. Intangible assets are not acknowledged on balance sheets which has dramatically decreased the usefulness of accounting (Jonge 2003c).

6.2.1 Characteristics of intangibles

These non-financial measures have intangible characteristics. They are called intangible assets, knowledge assets or intellectual capital. They have a number of characteristics. They are non-scarce: deployment of an intangible asset is possible at the same time in multiple uses. They increase in value when used. This is also referred to as scalability: intangible value increases when the scale in which they are used increases. Intangibles are not subject to diminishing returns as are tangible assets, but have increasing returns. Intangibles have strong network effects. Although not exclusively applicable to intangibles, network effects are characteristic for intangibles in the sense that intangibles often form the core of important networks. Intangibles create future value. All intangibles are future-oriented. Because of this they are ignored by traditional accounting systems. Intangible assets can be defined as non-physical claims to future value or benefits. Intangibles are difficult to manage and to control exclusively. For example, taking full advantage of the tacit knowledge residing in employees is more difficult than exploiting the value of a building or a machine to its maximum. Copying or re-engineering intellectual assets is relatively easy. It is difficult to protect intangibles' property rights. Cost accounting systems are not well geared towards intangible assets and are even wholly inaccurate for managing intangible asset-intensive corporations (e.g., technology companies). Intangibles investments are typically more risky, due to the fact that intangibles play the most dominant role in the early stages of the innovation process. Proper management can deal with this, for example. research and development alliances. Intangible assets are non-physical and therefore inherently difficult to trade. Legal protection is weak. They are characterised by large sunk costs and low marginal costs. Open exchanges for intangibles are in their infancy. Intangibles cannot be measured directly. Valuing intangibles is difficult. Intangibles are not easily seen in financial transactions. (Jonge 2003a)

At this point it is interesting to note that there is an analogy to be made between the characteristics of intangible assets and public goods. Public goods are goods that display two particular characteristics. Consumption by one person does not reduce the amount available for others (known as non-rivalry) and once the good is provided it is impossible to stop people consuming it even if they have not paid for it (known as non-excludability)[25]. This is the same as for intangibles which as described above are non-scarce. Examples of public goods are clean air, water, pavements, roads, forests and common land. Conversely a private good if consumed by one person, cannot be consumed by another person. It is technically possible for one person to consume a public good without reducing the amount available for someone else (Begg, Fischer, & Dornbusch 1997).

6.2.2 Valuation of public goods and intangibles

When it comes to valuing intangible assets, accountants face similar problems to those of economists in valuing public goods. It is difficult to put dollar amounts on the goods and assets in order to work out who should pay for them or benefit from them. However, identifying, valuing and managing intangible or immaterial assets is becoming increasingly important for companies (Daum 2003). Some organisations have created valuation models based on environmental economic principles. These include deriving prices by assessing environmental damage, conducting surveys to determine the amounts people would pay to avoid pollution, or what they would pay to endure pollution, analysing the cost of air pollution to house owners by estimating the decline in property values or the cost of water pollution by reference to number of fish killed and their associated market value. Other valuating methods include assessing avoidance costs. These are the costs incurred in preventing damage e.g. cost of purchasing safety equipment. Assessing restoration costs: the cost of repairing damage done can be carried out. Finally surrogate valuation and shadow pricing can be carried out. These are the social costs of environmental damage estimated by using shadow prices for recreational activities foregone, such as the cost of a day's boating, which may then be used to justify costs incurred in cleaning up a polluted river
(Gray, Owen, & Maunders 1987)

An environmental cost calculator was designed by Trucost (UK consultancy). It allows users to model the costs associated with environmental externalities to companies and sectors. It can be used to provide monetary valuations for intangibles. The user inputs a price for any one of almost 1,000 environmental resources and the calculator provides both the direct and

[25] Definition taken from http://www.bized.ac.uk/virtual/economy/library/glossary/glossarymp.htm

indirect impacts of this assumption. The model can analyse economic and environmental interactions throughout the global economy. The model is based on detailed government census and survey data. The final step is to assign a price to each of the natural resources. Drawing on an extensive international resource of academic research into the pricing of environmental externalities, the company compiled a library of prices for almost 1,000 different natural inputs and outputs. Users are presented with the list of prices for their selected resource. They can then choose a price from the list, or use their own value (Trucost 2003). However, the valuation of environmental costs only goes part of the way, it does not provide monetary values for environmental benefits or social benefits.

Other sources state that it may well be possible to assign monetary values to the intangibles generated by a company's CSR activities, e.g. by lowering levels of contamination in production effluent, or by improving community relations, but these are likely to remain off the balance sheet (Warner 2003).

What is missing from the way sustainable "development" or CSR outcomes are measured is not a means of quantifying or monetising the outcomes themselves, but a way of tracking the costs, liabilities and returns through the company's financial accounts over time, and incorporating these in a "benefits register" along-side the intangible strategic business and developmental outcomes (Warner 2003).

6.3 Reputation and CSR

Reputation is one of the most important non-financial indicators of a company's success. It is an intangible asset and is difficult to measure. A key component of reputation is corporate social responsibility. This can be illustrated by thinking about how, in the 21st Century, information about a company's activities, good or bad, can be sent instantly by e-mail or telephone from anywhere to anywhere in the world to opinion-formers and activists. A company's reputation can be made or destroyed in that moment and trust is an irreplaceable commodity (Grayson 2003).

The leading international branding consultancy, Interbrand[26], calculated that 96% of Coca Cola's stock market value is in intangibles, such as reputation, knowledge and brand. Kellogg's intangible value is estimated at 97% of its total market value and Amex's at 84%. Interbrand predicts that the proportion of the intangible valuation of companies represented by brands has risen from five per cent in 1960, to 30% in 2000, and will be 45% by 2010 (Grayson 2003). Reputation is historically a term applied to the perception of a company and its management. A similar concept, brand, came from the realms of product and in many businesses still applies to products and product ranges (Jefferies & Roberts 2003). However, for the purpose of this section, reputation and brand may be considered interchangeably.

Interbrand values brands on the basis of how much they're likely to earn in the future. Those projected profits are then discounted to a present value based on how risky the projected earnings are, i.e., what is the likelihood that they will in fact materialise. Interbrand work out what the brand's overall sales are, next they project net earnings for the brand. They deduct a charge for the cost of owning the tangible assets, based on the theory that whatever income is generated beyond that cost is due to intangible factors. This is the economic value added by such assets as patents, customer lists, and of course, the brand. The next step is to winnow the earnings generated by the brand from the earnings generated by other intangibles. Finally the strength of the brand is analysed to figure out how risky those future brand earnings are. To calculate the brand's strength, Interbrand look at seven factors including the brand's market leadership, its stability, its ability to cross geographic and cultural borders. The risk analysis produces a discount rate that is applied to the brand earnings to come up with a net present value. It is believed that this figure comes closest to representing the true economic value of that complex array of forces that make up a brand (Business Week 2003).

'The brands that will be big in the future will be those that tap into the social changes that are taking place' Sir Michael Perry[27]

Corporate social responsibility should be central to a company's activities in order to build and maintain its reputation and value. The need to protect and develop brands and corporate reputation and the need to attract and retain talented staff can be harnessed to improve business behaviour. An organisation can be brilliant at sourcing, innovation, customer-focus

[26] Interbrand provides businesses of all kinds, including countries (e.g. Estonia) with brand identities which reflect the qualities of the products and services being offered by the business or country client. The brand is then used in all aspects of marketing and advertising and the goal is that it should be immediately recognisable to the public, thus ensuring uptake and loyalty.
[27] chairman of Centrica Plc and Dunlop Slazenger Group

and all-round marketing, but if it gets some aspects of CSR wrong it may put all that investment and work at risk (Grayson 2003).

According to van Tulder, the six ingredients of a good corporate reputation are: financial performance, emotional appeal, vision and leadership, workplace environment, social responsibility, and products and services (Wessels 2003). A company with poor CSR has poor credibility and will suffer. Therefore CSR is important for the intangible value of a firm. A company's reputation has become one of its most valuable assets, and CSR has become one of the key components of corporate reputation. These components are found again in the most well known of all corporate reputation surveys, the annual Fortune "America's Most Admired" survey of corporate reputations[28]. The criteria used in the survey are: quality of products and services, innovation, value as a long term investment, financial soundness, ability to attract, develop and retain talent, community responsibility, use of corporate assets and quality of management. The convergence of five trends, business transparency, an increased knowledge base among consumers, the sustainability imperative, globalisation and the failure of the public sector, have helped to bring about the link between reputation and CSR (Keefe 2003). A company's failure to attend to its reputation and incorporate CSR into its business model can result in unfavourable publicity, proxy fights, consumer boycotts and other concerted action by stakeholders. Reputation can be added to the traditional competitive differentiators in the marketplace of price, quality, and service. Reputation may be even more important than these because bad publicity can seriously undermine a company's brand and render price, quality and service irrelevant. Companies need to develop good reputations in order to protect their brands. Reputation has become the guardian of brand. CSR has become the guardian of reputation. (Keefe 2003).

Considering the characteristics of reputation, it could be considered as a public good. Companies can try to control reputation and pay for reputation in a variety of ways, but it is open for interpretation and use by the public and can never be under a company's complete control. Reputation cannot be patented in the same way as a brand is patented and owned by a company. In this instance, reputation and brand must be considered separately. Brand can be considered as a private good by companies, because they pay for the patent and can litigate against abuse of the brand. However, brands can be used and manipulated by the public, most famously Adbusters[29], a non-profit US based network of artists and environmentalists, created spoof ads. They turned the messages of famous adverts for multi-national corporations upside down by customising them to meet their anti-corporation views.

[28] www.fortune.com
[29] www.adbusters.org

As discussed, CSR is an essential component of reputation. However, CSR is multi-faceted and there may be some aspects of CSR that are more central to reputation than others. These must be the components that are in the public eye and that can have the most beneficial or deleterious effect on reputation. For example, corporate governance is a component of CSR. In light of recent events in the USA (Enron, WorldCom etc), it can be assumed that corporate governance is an extremely valuable component of reputation. Environmental awareness is another important aspect of CSR in reputation as demonstrated by the Shell Brent Spar and Exxon Valdez reputation crises. Human rights and labour relations are important when discussing the reputation of apparel companies, e.g. boycotts of The Gap. It should be assumed that the CSR component affecting reputation varies by sector.

6.4 Non-financial performance indicators and the relationship with CSR

In this thesis, three empirical studies were carried out using financial indicators as the dependent variables. Instead of using financial indicators as a dependent variable in empirical studies of CSR and financial performance, non-financial indicators could be used instead. Examples of some of the non-financial indicators that could be used are given in table 6.1.

Table 6.1: Non-financial dependent variables for empirical studies

Independent variable	Dependent variable
CSR status	Staff turnover
	Reputation
	Quality of Management
	GRI reporting, production of CSR reports
	Environmental activities; environmental policies
	Social activities, social policies
	Compliance with codes or standards e.g. ISO 14001, SA8000, AA1000,

Monetary values could be placed on these non-financial indicators.

Table 6.2 lists some common intangible assets found on balance sheets, a range of mainstream intangibles that do not make it onto the balance sheet, and a further range of sustainable development or CSR intangibles that are even less likely to make it onto the

balance sheet. The reason for this being the great difficulties found in placing a monetary valuation on these assets.

Table 6.2: On-balance sheet intangible assets and off-balance sheet intangibles
Source: (Warner 2003)

Intangible Assets (occasionally on the balance sheet)	Intangibles (Unlikely to appear on the balance sheet in the foreseeable future)	
	Mainstream Intangibles	Sustainable Development (CSR) Intangibles
Brand value	Image and reputation	Policies and statements of
Patents	Strategic alliances	business principles for CSR
Trademarks	Customer satisfaction	and sustainable development
Licenses	Supplier and distribution	HSE and CSR management
Concessions	networks	and related skills
Distribution and other rights	Borrowing capacity	Procedures, management and
Good will (on acquisition)	Skills, knowledge and	reporting systems for
	experience	continuous improvement in
	Staff with specialist skills and	environmental and social
	strong company allegiance	performance
	(capitalised as enduring assets)	Community/stakeholder
	Capability for team work	relations
	Staff motivation	Environmental management
	Management expertise,	outcomes
	procedures and systems	Social/Community investment
	Security management	outcomes
	expertise	Non-commercial risk
	Training and human resource	management – health, safety,
	development capacity	social and environmental
	Innovation, market research	
	and R&D capabilities	

The Overseas Development Institute, a consultancy group in London which focuses on international development issues has developed a software tool (C3 Asset Management) to track development performance, mostly of an intangible nature in financial accounts [30].

Macrae (2003) said that placing monetary values on intangible assets was not appropriate or desirable. He advised that companies should take an ethical rather than monetary stance with CSR intangible assets. The most responsible companies are those that take their environmental and social responsibilities into their core culture and do not just look for the impact of their CSR policies on the bottom line.

6.4 Relative importance of CSR attributes

Companies can value CSR by researching how important CSR is to consumers when making choices about a company's products and services. The valuation of CSR is thus made in a comparative way. I.e. how important are CSR attributes compared with non-CSR attributes? Three case studies are presented showing how three different stakeholder groups were consulted on the relative merits of CSR over other attributes.

Case Study 1

"Over the course of nine years, Members of Parliament in the UK have changed their priorities when making judgements about a company. In 1991, 50% of MPs considered financial performance the most important factor when making a judgement about a company. 17% considered environmental responsibility as the most important factor, and 13% considered social responsibility as the most important factor. In 2000, these figures had changed dramatically. 28% considered financial performance as the most important factor, 30% considered environmental responsibility and 38% considered social responsibility as the most important factor (Hutton 2000). Whether the MPs have genuinely changed their opinion of what is the most important factor when making a judgement about a company, or whether MPs have become more savvy about answering polls is difficult to quantify. However, the trend is certainly in the direction of social responsibility as being considered as a relatively more important attribute than financial performance. Social responsibility is an intangible asset.

[30] www.odi.org.uk/pppg/activities/country_level/odpci/c3software/C3AM_overview.pdf

Case Study 2

The second case study is taken from the Co-operative Bank's survey of consumer decision making with regard to personal current accounts. Customers were asked which factors were important in their decision to open and maintain a Co-operative bank account. They were given the following list:

- Branch near home/work
- Parents banked there
- Recommended to me
- Dissatisfied with previous bank
- Image/reputation
- Ethical/ecological reasons
- Lower charges/competitive rates
- Other

53% of personal current account customers stated that ethics was one of a number of important factors, while 31% cited ethics as the most important factor (Cooperative Bank 2003). These results demonstrate that ethics or CSR, an intangible asset of the bank's, was considered more highly than lower charges or competitive rates, a financial indicator which would be assumed to score highly for customers.

Case Study 3

The third study considers the annual survey on CSR and reputation carried out by GlobeScan[31] in 20 countries. They sample 1000 people in each country and each sample is representative of all socio-demographic groups. In November 2003, they reported some of the results of their survey at a conference in Amsterdam. These included: "Most important factor when forming impression of a company" and "Attitudes of shareholders". People were asked to elicit what were the most important CSR related factors and the most important non-CSR factors when forming an impression of a company. The CSR factors were: labour practices/business ethics, environmental impacts, and demonstrated social responsibility. The non-CSR factors were economic contribution and brand reputation. The results showed that Italy, Germany, USA, Canada, Sweden, Great Britain, Argentina and Brazil viewed CSR factors as more important than non-CSR factors when forming an impression of a company. Nigeria, Russia, China, South Korea, India, Turkey, and Japan viewed non-CSR factors as more important when forming an impression of a company. China, for example, placed 70% importance on brand reputation when forming an impression. Germany on the other hand only

[31] www.globescan.com

placed 14% on brand reputation. Italy placed 41% importance on demonstrated social responsibility, whereas South Korea placed 7% importance on this criteria.
In the "attitudes of shareholders" section of the survey, people in the USA were asked to agree or disagree with the following:
CSR performance not as important as financial performance (45% agree)
Companies should be more responsible to shareholders than to society (54% agree)
Socially responsible companies are more profitable than irresponsible ones (56% agree)
Don't trust accuracy of financial statements of many companies (73% agree)
(GlobeScan 2003)

These three studies show the relative importance that consumers attach to CSR when making decisions about company reputation and about whether to choose their products and services. They often place CSR and reputation above financial performance when making consumer decisions.

6.5 Conclusion

This chapter has shown that there is a world of valuation beyond traditional financial valuation. While chapters 3, 4 and 5 of this thesis have shown the difficulties and limitations of assessing the financial returns to CSR, this chapter has sought to find the reason for such problems. The answer is that there is more to valuing a firm than measuring its financial performance: non-financial performance indicators or intangible assets account for a large part of the modern firm's valuation.

The following chapter is an empirical study to put these ideas into practice. I attempt to find out whether investors really value intangible assets when given a choice of company performance indicators and whether it is possible to place a value on the intangible assets. The intangible assets scrutinised are social and environmental activities.

7.0 Establishing the Value and Trade-off of Financial and Ethical Attributes: A Choice Experiment

7.1 Introduction

In chapter 6 we observed that intangible assets are an important component of firm valuation. We decided to move away from looking at the relationship between CSR and financial performance because it has proved to be so difficult to gather strong evidence for the relationship. This chapter therefore aims to elicit how individuals make investment decisions based on financial and non-financial information. Perhaps a firm's intangible values matter more to small investors than financial value. This decision-making affects companies, for example, the ways in which they operate, what they invest in and how they project themselves. This chapter aims to bridge the gap between assessing the financial returns to CSR and assessing the returns of intangible assets to CSR. Through the use of a choice experiment, we can assess how individuals select companies to invest in, based on a range of financial and non-financial attributes, including CSR attributes. This provides us with information about the relative importance of these attributes which can lead us to place a monetary value on the choice of company that is made. This information can be useful for companies wanting to know what motivates investors apart from financial valuation of the firm and who wish to assess their environmental and social risks. The information can also be used to make decisions about where companies should concentrate their activities in order to attract new investors.

7.2 Background

The purpose of this study was to assess what choices and trade-offs individual investors made when choosing between companies to invest in based on financial and non-financial information, including information on the companies' social and environmental activities. Most studies in this area have concentrated on consumer choice when selecting goods and services, as opposed to investment decisions. One study (Ethical Performance 2003) did identify that analysts with access to data on companies' social and environmental performance made more confident judgements about their economic prospects than those without this information. The studies on ethical consumerism asked respondents to rank the importance of a list of ethical issues. Such questions did not require consumers to trade-off ethical features of products against traditional features nor did they seek to determine the degree to which consumers would sacrifice to make these trade-offs (Auger et al. 2003). Choice experiments allow one to examine investment intentions in constrained choice settings

in which consumers are forced to balance features off against one another. Structured choice experiments also allow one to estimate the marginal price/value of both "functional" and socially responsible features of companies in different scenarios, i.e. of putting a "dollar" value on each attribute that is traded-off.

Assessing why people or institutions buy into or invest in companies is crucial for a company's strategy and success. As was seen in Chapter 6, non-financial attributes contribute hugely to the valuation of a company. Financial performance is only one reason why people invest in a company, there are a host of non-financial factors affecting the choice too e.g. risk, quality of product and services, quality of management, company reputation etc. A company's social and environmental attributes as well as its ethics also affect an individual or institution's decision to invest. However, the extent of this is not known. A company that knows more about how these choices are made, and the relative values of the choices can better position itself in the market and make more informed decisions on how to grow and develop.

In this study we are interested in the strength of consumer preferences rather than in the analysis of factors that influence investment in companies. We are not interested in looking in depth at the effect of gender, class, salary scale, ethnicity, or nationality on decision making. The following researchers have looked at these factors (Auger, Devinney, & Louviere 2000; Bhate & Lawler 1997; Roberts 1996). However, we do gather some basic socio-demographic data from the respondents in this survey as a basic validation check. Previous studies have also asked respondents to complete ethical disposition questionnaires (Auger, Burke, Devinney, & Louviere 2003). This allows the researchers to cross-check the ethical disposition of the respondent with the ethical choices made. For example by asking respondents for their views on euthanasia or abortion. It was decided not to survey ethical disposition in this instance because we wanted to keep the questionnaire short.

Choice methods refer to a flexible approach to collecting preference data from subjects in hypothetical situations. The objective is to place the decision-maker in a realistic frame of mind to compare a number of alternatives, each described in terms of some number of attributes. The decision context and product descriptions are the stimuli and the individual's decision is the elicited response. The decision scenario and descriptions are most commonly generated using experimental design techniques, with the objective of minimising the number of combinations that must be given to respondents to enable statistical identification of the underlying preference functions. It is common practice to have decision-makers view multiple scenarios. Choice data are generally analysed using random utility theory as a conceptual

framework (see next section). Choice models are not a theory of behaviour, rather they simply are a means of generating behavioural data from consumers (Adamowicz, Louviere, & Swait 1998).

It is often suggested that choice methods focusing on attributes evolved out of conjoint analysis (associated with market research). However, conjoint analysis is somewhat different. It is used for understanding and predicting consumer trade-offs and choices but it is not a theory about the behaviour of numbers in response to systematic manipulation of levels of some set of attributes. Traditional ratings-based conjoint analysis presents the decision-maker with a single product description that elicits a response on a ratings scale e.g. 1= highly unlikely to buy, 7= highly likely to buy. These numbers are used to make inferences about consumer preferences but do not help to predict choices.

Box 7.1 shows the different types of choice methods available. In this study the first method is used (conjoint analysis or choice experiment). In this study we want to find out the extent to which social and environmental company attributes play a part in investors' decision-making.

Box 7.1: Types of attribute-based stated choice methods

Conjoint (choice): a method of preference elicitation that presents to respondents one or more sets of two or more alternatives and asks that they indicate their most preferred alternative. Such data are analysed assuming that Random Utility theory is the underlying data generation process.

Conjoint (rankings): a method of preference elicitation that asks respondents to rank several alternatives. This ranking can be examined using random utility models and can be construed to be consistent with random utility based revealed preference models

Conjoint (ratings): ratings based conjoint is a preference elicitation method that has different forms. The most common is to present a respondent with a single product description and elicit their likelihood of purchase on a rating scale e.g. 1 to 7. Sufficient product descriptions are presented to each respondent so that individual level models are usually calibrated. Analysis: OLS (Adamowicz, Louviere, & Swait 1998)

This study tested the following hypotheses:

Hypothesis 1: Respondents value the non-financial attributes of companies at least as much as the financial attributes of companies.

Hypothesis 2: Respondents value the environmental and human rights attributes of companies at least as much as some of the other non-financial attributes of companies.

7.2.1 Theoretical Background

Choices are motivated by a theoretical framework that is set in a branch of utility theory called demand theory.

Typically in this framework respondents are being asked to choose between a non-market good at level (Q_0) and another at a greater level (Q_1).

An indirect utility function V can be defined to describe the amount of utility an investor can derive from investment Y given the price of company shares P and level of provision of non-market good Q i.e. intangible asset such as environmental or social attribute of company. It is assumed that the investor's utility will depend on other demographic and economic factors S. Thus the general form of the investor's indirect utility function is:

$$V(Y,P,S,Q) \qquad [1]$$

Under normal circumstances, more investment funds or lower share prices, would enable the investor to purchase more shares and hence realise a higher level of utility. Also, increasing the provision of non-market good is assumed to represent an improvement. Thus the utility enjoyed by the investor will be greater at level Q_1 of provision of non-market good than at level Q_0, hence,

$$V(Y,P,S,Q_0) < V(Y,P,S,Q_1) \qquad [2]$$

When making a choice, investors are assumed to be comparing their utility (or well-being) at the two levels of provision, Q_0 and Q_1. Since they experience greater well-being at the higher level of provision, it seems reasonable to assume that they would be prepared to pay at least

something to achieve Q_1. The more the investor pays out to achieve the higher level of provision, the less utility they realise. Indeed their maximum WTP can be described as the monetary payment that would ensure that their well-being with the higher level of provision is just identical to their well-being at the lower level of provision but minus the payout. We can define C as the compensating variation measure of a change in welfare. It is the investor's maximum WTP to achieve the increase in provision of the non-market good.

$$V(Y,P,S,Q_0)=V(Y-C,P,S,Q_1) \qquad [3]$$

By manipulating equation [3], C can be defined as a function of the other parameters. This is known as the bid function:

$$C=C(Q_0,Q_1,Y,P,S) \qquad [4]$$

Respondents to a choice experiment can be assumed to know the exact form of their utility function, i.e. they know which factors are important in establishing their level of welfare and how these interact in the utility function. The same cannot be said of the researcher. The researcher must make an informed "guess" as to the structure of the utility function. In other words, the researcher must build a simplifying model of the real utility function which captures the factors that are thought to be of most importance in establishing the welfare change experienced by an investor. The researcher's model is given by

$$v(y,p,s,q,\eta) \qquad [5]$$

η represents the part of true indirect utility that the researcher is unable to estimate using the simplifying model. The inclusion of this element allows us to write:

$$V(Y,P,S,Q)=v(y,p,s,q,\eta) \qquad [6]$$

η can be considered as an unobserved variation in tastes. That is, the researcher can make an estimate of the utility that an investor derives from their investment given their characteristics, the share price and the provision of non-market goods but this will not be precise since each investor has different and unobservable tastes.

Economic theory gives little guidance as to the form that should be taken by the researcher's model of the indirect utility function. The simplest form is:

$v_q=\beta y+\alpha_q+\eta_q$ q=0 or 1 [7]

The subscripts q are included to show that the utility function can be evaluated before and after the change in provision of the non-market good, that is when $q=q^0$ and when $q=q^1$. Adapted from Bateman et al (2002).

The prices of market goods and the quantities provided of other non-market goods are assumed to be fixed throughout the analysis and are not included in the model of the indirect utility functions. The parameter β is the coefficient on investment. It can be interpreted as the marginal utility of investment. That is, β represents the increase in utility that results from a unit increase in investment. Utility coming from provision of the non-market good is captured by the expression $\alpha_q+\eta_q$. α_q captures the part of the utility that the researcher can observe while η_q is an element representing unobserved variation in tastes for the non-market good.

The next step is to link this theory to a statistical model of choice that is consistent with the design of a choice experiment. Random utility theory can actually be linked to a range of model forms from the family of generalised linear models (McCullagh and Nelder, 1989). which are defined in terms of deterministic and random model components. Most environmental economics texts describe the multinomial logit modelling procedure applied to categorical choices (yes, no, don't know). But it is also possible to model most choice data using bivariate models, that allow the explanatory variables to be treated as levels (McCullagh and Nelder, 1989).

7.3 Methods and Data

In this study, full-time and part-time MBA (Masters of Business Administration) students from the Edinburgh Management School[32] were asked to respond to a choice experiment questionnaire. The MBA students were selected to be the sample population for the survey because they have either been involved in making investment decisions for themselves or for their employers, or because they are likely to do so in the future. The Edinburgh MBA is well known to have a financial services focus. The students came from a variety of business backgrounds: private and public sector. They had in common that they had completed a mandatory business ethics module in their first term.. The students were not a random sample of individuals, but they were considered to be a useful group as they were business minded and informed about corporate social responsibility issues.

[32] A department of the University of Edinburgh

A very brief demographic questionnaire was drawn up, the following information was requested from each respondent: gender, nationality (grouped by region), age, does the respondent have children, professional background (private sector, public sector, NGO or other) and personal share ownership status. This information was used to cross-check if choice was determined by these variables.

To set up the choice experiment the attributes to be traded off by the respondents were established. The issues addressed in chapter 6 were revisited to draw up a list of financial and non-financial attributes that could be considered when making investment decisions. The number of attributes had to be kept small because otherwise the number of permutations would have been too large to handle statistically and logistically. The financial and non-financial attributes were: market and book financial performance, quality of products and services, reputation, share price, existence of environmental policy, and human rights infringement. Only a brief explanation of these attributes was provided as it was assumed that the students had a good understanding of the terms used. These can be seen in Table 7.2.

Next, each attribute was assigned levels. Three of the company attributes: financial performance, quality of products and services, and reputation each had 3 levels from which respondents could choose. These were low, medium and high (1, 2, 3). Three levels of choice were provided to try and model "real life" as closely as possible, in real life, more than three levels of choice would exist. The two ethical attributes had 2 levels, these were Yes and No answers. Only two levels of choice were provided here, because we wanted to model the existence or absence of environmental or social policies and not comment on the strength of those policies or how they translated to activities. Share price had 6 levels to give a range of prices to choose from; again this larger number of choices was designed to model a real life scenario where the number of price permutations is infinite. The share prices ranged from 100p to 600p in increments of 100p. These share price levels were used because they fell within the range of share prices that oil companies in the UK currently fall in. No baseline level was given, which would correspond to the status quo or "do nothing" situation. This was an omission. Ideally there would have been a "do nothing" option for the respondents so that one of the options would have been in the respondents' feasible choice sets in order to be able to interpret the results in standard welfare economic terms (Hanley, Mourato and Wright 2001).

A spreadsheet was designed with the full range of permutations that were possible from the 6 attributes and the 19 levels (3,3,3,2,2,6). This amounted to 864 x 36 permutations, which were

then factored down to give a representative sample of 108 permutations, on the basis that each respondent completed 8 pairs of scenarios. These were calculated by the university statistician using specialised software.

Statistical design theory was used to combine the levels of the attributes into a number of alternative scenarios or profiles to be presented to respondents. Complete factorial designs allow the estimation of the full effects of the attributes upon choices: that includes the effects of each of the individual attributes presented (main effects) and the extent to which behaviour is connected with variation in the combination of different attributes offered (interactions). These designs often originate an impractically large number of combinations to be evaluated. Fractional factorial designs are able to reduce the number of scenario combinations presented with a concomitant loss in estimating power (i.e. some or all of the interactions will not be detected) (Hanley, Mourato and Wright, 2001).

The spreadsheet was then translated into Word document questionnaires using mail merge. 108 different questionnaires were created, each one with 8 scenarios. A front page of instructions and explanations was added to the questionnaire on what each of the attribute levels represented (see Annex 1). Respondents were asked to imagine that they were private investors weighing up oil companies that they wished to invest in. Oil companies were used in the study as they were familiar to the students from their lectures and case studies, and are well known to have environmental and human rights issues. However, the attributes could related to other companies and sectors too. They had approximately 10 minutes in which to read the introductory paragraphs, select their preferences from the scenarios and answer the demographic questions. The questionnaire was piloted to check that it was logical to complete.

Table 7.2: Company and ethical attributes for oil companies

Company attributes	*Levels*
Market and book financial performance	Low, medium, high
	1, 2, 3
Quality of products and services	Low, medium, high
	1, 2, 3
Reputation	Low, medium, high
	1, 2, 3
Share price	100-600p
Ethical attributes	
Environmental management: Does the company have an environmental policy	YES/NO
Human rights: policy and activities	YES/NO

7.4 Results

Out of 108 different questionnaires that were handed to the MBA students over 2 days, 90 were returned. The data was input to Excel and regressions run in Limdep. Codification is in the annex.

The discrete choice (multinomial logit) models provided the following results.

Table 7.3 To show trade-off between attributes

	Coefficient (T statistic)	s.e.
Constant	-0.0265	0.0957
	(-0.277)	
P (financial performance) 2v1	0.5061	0.07059
	(7.169)*	
P (financial performance) 3v1	0.5176	0.0508
	(10.189)*	
P (financial performance) 3v2	0.0115	
Q (Quality of products and services) 2v1	0.2436	0.0688
	(3.538)*	
Q (Quality of products and services) 3v1	0.3147	0.0476
	(6.612)*	
Q (Quality of products and services) 3v2	0.0711	
R (Reputation) 2v1	0.0064	0.683
	(0.094)	
R (Reputation) 3v1	0.1784	0.047
	(3.752)*	
R (Reputation) 3v2	0.776	
M (Environmental management)	0.538	0.0983
	(5.469)*	
H (Human rights policy)	0.855	0.102
	(8.38)*	
Share Price	-0.000848	0.000408
	(-2.078) *	
N=673		
Log likelihood function= -331.7047		
Log-L for Choice model = -331.7047		
Chi-squared = 269.31565		

* denotes significant (p>0.05)

Table 7.3 showed how respondents traded-off between attributes. Between the medium and low levels of these attributes (2v1) the most important attribute was a human rights policy and the second was an environmental policy.

The second model showed the trade-off between high (3) and low (1) levels of the attributes. The results show how respondents traded off between the high and low levels of attributes. These levels were at the opposite ends of the spectrum to each other. The presence of a human rights policy had the greatest co-efficient of all the attributes, again followed by the presence of an environmental management policy.

The third model showed the trade-off between high (3) and medium (2) levels of attributes. The results showed the trade-off by respondents for the indicators for the high and medium level of attributes. Human rights was the most important factor, followed by reputation and environmental management.

7.4.1 Socio-demographic data

Socio-demographic data was collected in order to find out if it affected choice. This data is summarised in Table 7.4:

Table 7.4 : Summary of socio-demographic data

Indicators	Parameters	Results
Gender	Male / female	65 males
N=81		16 females
Nationality	1: Europe	44 Europeans
N=79	2: N. America	10 N Americans
	3: Central and South America	8 Central and South Americans
	4: Middle East	0 Middle East
	5: Asia and Australasia	13 Asians and Australasians
	6: Africa	4 Africans
Age		Mean age: 32
		Range 26-45
Children	Yes / no	Yes: 15
N=78		No 63
Professional background	Private	72
N=80	Public	4
	Ngo	0
	Other	4
Share ownership	Yes/ no	Yes: 54
N=80		No: 26

Although 90 surveys were returned, not all the respondents filled in the socio-economic and demographic sections. Some of the respondents partially filled in these sections.

Regressions were run to test whether any of the socio-demographic variables had an effect on the choices made. Gender, age, children, professional background, and share ownership had no significant effect on choice. No expectations had been made as to what choices the respondents would make based on their gender, age, whether they had children, what their professional background was or whether they owned shares.

Nationality had a statistically significant effect on choice in the following cases at the 5% level:

South Americans had a higher preference to Europeans for medium over low reputation, and for high over medium reputation.

Asians and Australasians had a lower preference to Europeans for environmental management at the three levels (high-low, medium –low, high – medium).

N. Americans had a lower preference to Europeans for high over low financial performance , and for high over medium financial performance. However, they had a higher preference than Europeans for medium over low financial performance.

N. Americans had a lower preference for high over low reputation.

No expectations had been made as to which nationalities would make which type of choices.

7.4.2 Monetary values of attributes

The choice experiment allows us to convert the probability of investment directly into conditional monetary equivalents. By comparing the monetary value of specific bundles of company features one can estimate the monetary equivalent of the utility that a consumer derives from the presence or absence of specific features. Willingness to pay (WTP) in the desired quantity is the price sensitivity adjusted difference in the expected maximum utilities of the different product mixes. Hence if the bundle of product attributes can be represented by vector J:

$J= (j_1, j_2, \ldots j_k)$ where J_k represents J with one company feature (k) changed (e.g. two companies are identical in every way except that one has an environmental management policy), the monetary value difference between J and J_k is

$[1/\beta_{price}](EU(Jk)-EU(J))$ where EU is the expected value of the maximum utility of a set of product features and $-\beta_{price}$ is the price coefficient from the binary model (Auger, Burke, Devinney, & Louviere 2003).

Table 7.5 Prices respondents are willing to pay for each attribute at the various levels (in pence)

Attributes	2v1 (pence)	3v1 (pence)	3v2 (pence)
P: Market and book financial performance	597	610	13
Q: Quality of products and services	287	371	84
R: Reputation	7.57	210	202.43
Environmental management policy	634	634	634
Human rights: policy and activities	1009	1009	1009

It was possible to calculate the price that investors were willing to pay for each attribute based on the share price that was assigned to each company in each choice set. In the data relating to choices between medium and low (2v1) performing companies, people are willing to pay the most highly for a human rights policy, followed by a similar amount for an environmental policy and good financial performance.

In the second scenario, when choosing between high and low (3v1) performing companies. People will pay the most for a human rights policy, and similar amounts for an environmental management policy and financial performance.

In the third scenario, when comparing companies of high and medium value (3v2), people are willing to pay the most for a human rights policy, followed by an environmental management policy.

7.5 Discussion

The results of the choice experiment show that the ethical attributes of companies, the presence of a human rights policy and of an environmental management policy play an important role in the respondents' decision to invest in a company. The presence of human rights and environmental management policies rank higher than any other attribute in all of the scenarios.

Financial performance is valued more highly than the two non-financial non-ethical indicators "quality of products and services" and "reputation" in two of the three scenarios. These results were confirmed in the willingness to pay exercise. When the choices were transformed

into monetary values, it was seen how environmental policy and human rights were valued higher than the other attributes.

It is possible that interactions between the attributes are an important determinant of the decision to invest. However it was beyond the design and scope of the experiment to investigate interactions between the attributes. We only tested for main effects in the experiment.

One of the attributes was share price, this featured the lowest in every scenario. It had a negative coefficient, showing that respondents opted for low share price over high share price. Several respondents commented that they could not make decisions based on price as the share price was not set in context, there was no trend data as to whether the price was going up or down or how it related to the market as a whole i.e. its Beta[33]. A more thorough pilot study may have shown up this flaw and if the experiment was repeated more background information on what the share price meant could be provided.

The socio-demographic data gathered demonstrated that there was no relationship between gender, age, children, professional background and share ownership and choices made. Some significant data was obtained for the relationship between certain nationalities (or groups of nationalities by region) and certain choices.

The Edinburgh MBA students exceeded my expectations in terms of how they valued companies. I had anticipated that they would consistently value financial performance, quality of products, and reputation above the two ethical attributes. However, this was not the case. Are these students exceptional or were their choices based on practical, long-term, risk-averse decisions? More background information would be needed to find out how the students made their choices, however, it is encouraging that these choices were made at all. The students were not known to be exceptionally open to ethical consumerism and decision-making. However, they were placed in an ideal world scenario, they were not having to invest their own money and take risks. One student who worked in fund management said he spent about as much time on investment decisions in his job as he did on my questionnaire. Given that most of the students came from private sector backgrounds and indeed Edinburgh recruits a large number of students from the finance sector, these results were even more surprising.

[33] Beta coefficient: the amount of systematic risk present in a particular risky asset relative to that in an average risky asset (Ross 2003).

7.6 Conclusion

Respondents valued the non-financial attributes of companies (quality of products, reputation, environmental management and human rights) at least as much as the financial attributes (financial performance) of companies.

In fact respondents valued the environmental and human rights attributes of companies more than any other attributes (except for reputation in one scenario).

Social and environmental information is valuable to the respondents when making investment decisions. They are able to weigh up the information and trade it off against conventional company attributes and make more informed choices about which companies to invest in. This information is useful to companies, they can market their environmental and social activities knowing that this information will be of interest and use to investors. It means that they should engage in CSR in order to attract investors.

The experiment has also provided an insight into the monetary value of social and environmental indicators, the so-called intangible assets. The crude monetary values provided in this study should not be taken as absolute figures, but as relative figures given the different scenarios. This information could also be used by companies to make trade-offs between investing in more or less environmental or social activities.

7.7 Annex

Choice Experiment Questionnaire

For MBA students, Edinburgh Management School, 12th February 2004

From Marina Martin Curran, PhD student, School of GeoSciences, University of Edinburgh

I have been working on the link between corporate social responsibility and financial performance for my PhD. Please could I have 10 minutes of your time in order for you to carry out a choice experiment that will assist me in my research.

You are a private investor and I am providing you with the opportunity to choose between pairs of oil companies to invest in. ie. You may choose to invest in either Company A or Company B, in C or in D, in E or in F etc.

There are 8 pairs of companies to work through. In each case, there are 6 attributes: market and book financial performance, quality of products and services, reputation, environmental management, human rights and share price. For each company, each attribute has been assigned a different level. You must weigh up these levels and make your investment decision. To guide you, the table below gives some broad definitions of what the levels mean

ATTRIBUTE	LEVELS	DEFINITION
Market and book financial performance	High, Medium, Low	High: Strong financial performance Medium: Average Low: Poor financial performance
Quality of products and services	High, Medium, Low	High: products and services win awards Medium: Average Low: products and services may be faulty and prone to litigation

Reputation	High, Medium, Low	High: household name with positive connotations Medium: fairly well known Low: may be subject to boycotts
Environmental management	Yes, No	Yes: Presence of environmental policy and activities No: Absence of environmental policy and activities, violations and fines
Human rights	Yes, No	Yes: Presence of human rights policy and activities No: Absence of human rights policy and activities, violations and fines
Price	Range from 100p to 600p per share	

Please clearly circle the letter of the company that you wish to invest in on the following pages.

Finally,

Please fill in the boxes below, these are used to control for variation in the data

Gender	
Nationality	
Age	
Do you have children? (please circle)	Yes No

Professional Background (please circle)	Private sector Public sector NGO Other (please state)
Share ownership: (you have private investments) (please circle)	Yes No

Thank you very much for your help

Marina

Choice Experiment

1

1

	A	**B**
Market and book financial performance	High	Low
Quality of products and services	Medium	Low
Reputation	Medium	Low
Environmental management	No	Yes
Human rights	Yes	No
Price	300p	200p

1

2

	C	**D**
Market and book financial performance	Low	Medium
Quality of products and services	Medium	Low
Reputation	Low	High
Environmental management	Yes	No
Human rights	Yes	No
Price	200p	300p

1

3

	E	**F**
Market and book financial performance	High	Low
Quality of products and services	High	Medium
Reputation	Medium	Low
Environmental management	Yes	No
Human rights	Yes	No
Price	200p	200p

1

4

	G	H
Market and book financial performance	High	Medium
Quality of products and services	Low	High
Reputation	Medium	High
Environmental management	No	Yes
Human rights	Yes	No
Price	400p	500p

1

5

	I	J
Market and book financial performance	Medium	Low
Quality of products and services	Medium	High
Reputation	Medium	Low
Environmental management	No	Yes
Human rights	No	Yes
Price	100p	200p

1

6

	K	L
Market and book financial performance	Low	High
Quality of products and services	Low	High
Reputation	Low	High
Environmental management	No	Yes
Human rights	No	Yes
Price	600p	300p

1

7

	M	**N**
Market and book financial performance	Medium	High
Quality of products and services	High	Medium
Reputation	High	Low
Environmental management	No	Yes
Human rights	Yes	No
Price	300p	400p

1

8

	O	**P**
Market and book financial performance	Low	Medium
Quality of products and services	Low	High
Reputation	Medium	Low
Environmental management	No	Yes
Human rights	Yes	No
Price	300p	200p

7.8 Annex: Codification of multinomial logit model

```
 nlogit;
lhs=choice;
choices=a,b;
rhs=one,dp2,dp3,dq2,dq3,dr2,dr3,m,h,price$


wald;
fn1=-1*b_dp2/b_price;
fn2=-1*b_dp3/b_price;
fn3=-1*b_dq2/b_price;
fn4=-1*b_dq3/b_price;
fn5=-1*b_dr2/b_price;
fn6=-1*b_dr3/b_price;
fn7=-1*b_m/b_price;
fn8=-1*b_h/b_price$
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8.0 Discussion

Originally this thesis was going to examine the food and agriculture sector's relationship with corporate social responsibility. I was going to look at what the drivers were for farmers, supermarkets and others involved in the food supply chain to adopt the various CSR initiatives on offer (such as quality assurance schemes, organics, or free range) and how this would affect their financial performance. I therefore undertook an extensive review of the literature relating to CSR in the food and agriculture sector. I investigated the possibility of conducting a survey of farmers and of supermarkets to look at why and how they opted into CSR standards and schemes. However, while conducting my review, I realised that there was still considerable scope for providing evidence of the relationship between corporate social responsibility and financial performance on companies in all sectors before focusing on one specific sector.

I also determined that the food and agriculture sector in the UK was too small to provide me with large enough datasets to conduct the sort of analyses I was interested in: regressions of financial performance and CSR. At this point I had also decided to work with secondary data because I had been made aware of the problem of questionnaire fatigue in the CSR area. Primary data analysis would have required some sort of survey to be carried out. In the last ten years, academic and corporate researchers have extensively surveyed companies on their social and environmental policies, to the extent that it is widely known that companies suffer from survey fatigue and return very few questionnaires that are not of immediate and obvious benefit to them. Farmers are also surveyed regularly in the UK and would be unlikely to respond in large enough numbers.

I found a number of publicly available CSR datasets that had not been fully analysed. The two datasets analysed in this thesis were the FTSE4Good Index and the Calvert Social Index Universe. The FTSE4Good indices are publicly available, the Calvert dataset is more restricted, but was made available to me[34].

I wanted to find out whether companies in the FTSE4Good index benefited financially from inclusion in the index and whether companies deleted from the index suffered when excluded from it. I decided to conduct an event study as the dates of the release of information were known exactly. Event study methods had been used previously by researchers in the field of CSR and financial performance to good effect. The results of my study were not as conclusive

[34] I organised an internship for myself at Calvert in Washington following a meeting with the company's chief executive at the Triple Bottom Line Conference in Brussels in 2002.

as previous work in this area. Companies were not rewarded for being included in the index and were not penalised for being deleted from it. The general trends were in the right direction but were not statistically significant. There were several reasons for this: the FTSE4Good index was a relatively young and un-influential index at the time of analysis. It had only been in existence for two years and had encountered some criticism in the way that companies were selected for inclusion and no-one else to my knowledge had conducted an event study using this data before (Hopkins 2001a). Other indices such as the Dow Jones Sustainability indices, which had been around longer, were more popular with analysts. These reasons may have contributed to the fact that the market did not respond to news about companies added and deleted from it. Event studies need big events that make front page news in order to counteract the multitude of other news stories that can have an effect on share price. The FTSE4Good announcements may have just been considered as one of many more minor stories affecting share prices and were not considered as significant news stories. The FTSE4Good index will have to prove itself over the next few years as a good indicator of CSR before analysts will take it seriously and before inclusion or deletion from the index can really affect share price. In order to do this the methods used to select companies for the index will have to be more transparent and information on why companies are deleted from the index will also have to be made available.

In the second empirical chapter I showed what the probability would be of a company passing a social and environmental screen set up by a Socially Responsible Investment research team (Calvert) given information on company size, financial performance (income gearing and profit margin) and sector (energy and financial services). The usefulness of this type of analysis would be for firms such as Calvert and other researchers to be able to focus their investigations on companies that are most likely to pass the screen, thus saving them time and money. This analysis made predictions about what sort of company was likely to pass a screen. The results showed that small companies were more likely to pass Calvert's screen than large companies. This could be for a number of reasons. Large US companies have more data available about their activities, both good and bad; they are more likely to be involved in a diverse range of activities. This diversity will make them more likely to be involved in an activity which will cause them to fail the screen. These companies are more likely to have operations outside the US where environmental and social conditions are not as regulated as within the US, which again will make them susceptible to failing the screen. Small companies do not pass by default, but because they are more likely to be based in the US and subject to local community pressures as well as regulations in order to keep them to a higher standard of CSR.

Companies with high profit margins were more likely to pass the screen than companies with low profit margins. A high profit margin is an indicator of a well-managed firm and past studies have shown a positive relationship between a number of management indicators and CSR. Well managed companies invest in CSR because they understand the value CSR adds to their reputation and risk management as well as potentially to their profit margins. Well managed companies will be involved in CSR without necessarily calling it that or realising that that is the name for what they have been doing for years. A company that has always looked after its staff well, offered appropriate wages, holidays, benefits, and training opportunities is a socially responsible company. Now it can further capitalise on its good reputation by advertising its core values and being included in socially responsible indices.

I analysed the effect of sector on passing the Calvert screen. I chose two sectors at opposite ends of the environmental pollution spectrum: energy companies and financial companies. Financial companies were highly likely to pass the screen because they are not directly involved in polluting activities.

Not all the financial performance indicators tested in this analysis provided statistically significant results (income gearing). This may be for a number of reasons: the analysis was based on three years of data, this may not be enough of a time series to show a significant relationship between passing the screen and these particular financial indicators, or it may be because these financial indicators were not appropriate for discussing the probability of passing a screen. I was not able to investigate the effect of a longer time series on the result as Calvert has only been keeping a detailed record of its activities for the last three years. The results demonstrated that market capitalisation exerted a strong statistical effect in the analysis which initially masked the effects of the other indicators.

The Calvert Social Index Universe as a dataset had a number of positive and negative attributes that contributed to its usefulness in these types of analyses. The dataset was large (over 1000 companies listed) and so had power in statistical analyses. Each company must pass through an extensive and rigorous analysis that involves answering questions on labour, human rights, indigenous rights, community, environment, product, and business ethics. The greater the number of criteria that must be analysed, the less subjective the grounds for passing or failing a company should be. The criteria are not yet scored and weighted to assist with making decisions on passing or failing, this is currently being worked on at Calvert. As a result each decision about a company's status must be taken by a panel. The Calvert Social Index Universe is highly respected because it was developed over 20 years to be very comprehensive: the array and depth of questions that are asked of each company is impressive

and requires an enormous amount of time and effort. A detailed description of the Calvert's methodology is not available as it is confidential.

The next empirical analysis (chapter 5) resembled far more the types of studies commonly found in the literature: an investigation of the effect of passing a socially responsible investment screen on the financial performance of companies. The previous analysis, the probability analysis, looked at the problem from the other way round: the probability of passing a screen based on firm characteristics. I set out on the assumption that the data was arranged as a "panel", i.e. that the data varied over time. However, this turned out not to be the case. The pass or fail status of the companies in the Calvert dataset did not change significantly over time. Some companies did move from pass to fail status, and vice versa. These switches occurred at the time of review meetings and therefore the dates of these switches are not related to a specific event causing a company to change status e.g. an oil company spilling oil in the ocean. We therefore cannot look at changes in financial performance around these dates and draw any conclusions about the relationship between SRI status and financial performance at a specific point in time.

The composition of the datasets varied because the Calvert Social Index Universe was built to reflect the composition of the Russell 1000. Calvert analysed the top 1000 companies by market capitalisation that made up the Russell 1000 index and this of course changed over the course of three years.

The results of the effect of passing or failing the screen on three financial indicators (market to book ratio, earnings per share and return on equity) were mixed. Only the effect of passing the screen on earnings per share provided evidence of a strong relationship. I have therefore not been able to add substantially to the body of work in existence which looks at this relationship. However, each small step pointing in the direction of a positive relationship between CSR and financial performance is helpful in convincing sceptics that it is worth investing in CSR in order to achieve greater financial rewards.

These results are not enough to convince anyone that the reason for investment in CSR is for higher returns. It would be foolish to think that companies would invest in CSR purely for financial returns. At least the results can show that investing in CSR does not have a negative effect on returns. This is the concern of the sceptics, that investment in CSR means reduced investment in money-making activities.

These conclusions led to the next piece of work, an investigation of non-financial indicators and CSR. If CSR does not guarantee higher returns, why do companies invest in it? The reason is that there are a number of non-financial indicators of great importance to companies and their investors. These indicators do not have a direct monetary value, but looked at in combination they add up to a considerable amount of a company's intangible value. CSR is intrinsically linked with a number of these non-financial indicators, for example, management and reputation. Good management of the workforce and the environment in which the company operates has a direct relationship on productivity, sales, profit and the bottom line. A company that manages its labour force well, will have a lower turnover of staff, less sick days, and greater productivity due to good morale. A company that manages the environment in which it operates responsibly, will have a good health and safety record (and consequently no fines), reduced pollution (less litigation), and the environment will be more sustainable (e.g. a factory will not have to be moved because it has polluted the water and land around it). Similarly, a company with a good reputation will attract investors, staff, and sales because its products are highly regarded, its company ethic is trusted, it has a strong brand loyalty and the company is seen in some intangible way in a good light. We can say, therefore, that companies will invest in CSR, almost unwittingly, because it benefits their non-financial valuation. This is the way to appeal to the sceptics: invest in CSR and your reputation will improve and therefore your bottom line. Invest in CSR as part of good management and your bottom line will benefit.

In order to test the hypothesis that investors value non-financial indicators and include among these CSR, a last empirical study was carried out. I designed the experiment to assess the choices and trade-offs made by investors when taking investment decisions. My subjects were the students on the Edinburgh Management School MBA course, a group that I knew was not subject to questionnaire fatigue. I was confident of getting a high proportion of the questionnaires back. I also knew that the students had studied business ethics in their first term and were sensitised to CSR, but that being students of business they were also highly motivated by financial returns. The results were very encouraging. The students valued the presence of a human rights policy more highly than any other indicator. These results were transformed into monetary values which showed more clearly how human rights and environmental policy were valued highly by the students.

This last exercise took the thesis to another level. I was originally only interested in financial performance and CSR as dependent and independent variables on either side of an equation. Now it can be seen that CSR and financial performance are on the same side of the equation.

They are both measures of company performance. CSR is an intangible measure which can have significant bearing on a firm's overall intangible valuation.

This thesis has added a number of unique findings and features to the body of work on corporate social responsibility. I have conducted an event study on the FTSE4Good index. This is the first time an event study was conducted using this dataset. This is the first academic research that has used the FTSE4Good as a dataset, to my knowledge. I have conducted academic research on the Calvert Social Index Universe. Again, this to my knowledge is the first time this has been allowed. These three analyses have added to the empirical body of work on the relationship between CSR and financial performance by lending more weight to the fact that it is possible to show relationships between the two.

8.1 Recommendations for future work

Other researchers will add to the body of work on the relationship between CSR and financial performance. They will use different financial indicators and different proxies for CSR as well as more sophisticated econometric techniques[35]. It is likely, however, that they will encounter similar problems to the ones I have described due to the nature of CSR and traditional firm valuation. A good proxy for CSR is not easily constructed and firm valuation is based on more than just financial indicators.

More research is needed to analyse the relationship between CSR and intangible assets such as reputation and management. Is CSR philanthropy? Is it philanthropy with a profit motive? The question must be asked. The answer will provide more information to managers as to which aspects of their reputation, people, and environmental management they should focus on in order to improve their overall corporate social responsibility and provide their company with greater intangible value.

To return to the original theme of the thesis, an analysis of the food and agriculture sector, I now recommend making case studies of different companies in the food supply chain. These will identify the intangible assets at work in each link of the food chain and show where the pressure points are for inclusion of CSR. This must be useful because so much of a supermarket's reputation hinges on CSR e.g. supply chain management, farmer relations, animal welfare, and food transport, to name but some.

[35] I was asked to review a paper (July 2004) by the Journal of Environmental Management by Wagner, Marcus " How does it pay to be green? A panel data analysis of the relationship between environmental and economic performance in the European paper industry". I was also asked by a student at Edinburgh University Management School for advice on a dissertation in the same area.

8.2 Conclusion

The aim of this thesis is to assess the rate of return of the adoption of corporate social responsibility initiatives.

I have done this in a variety of ways, using different proxies for CSR, different financial indicators and different econometric methods. It has proved difficult to demonstrate the rate of return of CSR initiatives in a truly objective way. Many of my results have shown a positive trend in the relationship and there have been no measurable negative trends. At the very least I can say that firms do not incur any financial loss or damage from involvement in CSR.

I pursued my investigation by moving from the assessment of financial rates of return to non-financial rates of return and conclude that CSR is an important component of the intangible assets: reputation and quality of management. I can now define CSR as a measure of company performance in its own right. CSR is a relatively new jargon, but it is a concept that has been around for years as a combination of business ethics, philanthropy, moral, and social responsibility. The difference is that now companies can capitalise on their social responsibility through marketing and advertising their environmental and social activities. This will be distasteful to some, but heartening to those who feel that any demonstration of social responsibility on the part of companies is better than none.

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Appendix

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