Market Valuation of Ethics:

How Valuation Multiples are Affected by Investors' Ethical Perception

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Abstract

Previous research has focused on the correlation between CSR and returns, whilst considerably less efforts have been undertaken to investigate whether CSR affects a company's valuation. Therefore this paper focus on investigating the correlation between these two variables. This is done by comparing valuation multiples of constructed indices consisting of bad and socially responsible companies to relevant benchmarks chosen by industry and geographical characteristics. The Socially Responsible Index (SRINDEX) consists of the 53 best companies concerning CSR reputation, whilst the Bad Brake and Sakkestad Index (BBSINDEX) consists of 39 companies where the opposite is true. Matched pairs analyses are performed to investigate differences over a 20-year period. It is found that there are variations in valuation multiples (P/E, P/B and EV/EBITDA) due to investors' ethical perception, and that these come in the form of premiums for both the SRINDEX and BBSINDEX. This indicates that managers can, ceteris paribus, maximise company value either through outstanding CSR efforts, or by completely neglecting CSR.

Keywords: Valuation, Multiples, Corporate Social Responsibility (CSR), Socially Responsible Investing (SRI), Vice Investing, Business Ethics, Matched Pairs Analysis, Student's t-Test, log-normal Transformation, Anderson-Darling Normality Test, Trend Analysis, Sin Stocks, Bad Companies

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TABLE OF CONTENTS

1.	Introductio	on	1
	1.1.	Background	1
	1.2.	Problem Discussion	2
	1.3.	Research Purpose	3
	1.4.	Research Questions and Objectives	3
	1.5.	Limitations and Delimitations	4
	1.6.	Report Outline	5
2.	Theoretica	Il Framework	6
	2.1.	Business Ethics	6
	2.1	.1 Corporate Social Responsibility	7
	2.1	.2 Shareholder and Stakeholder Theory	7
	2.1	.3 Socially Responsible and Vice Investing	8
	2.2.	Modern Portfolio Theory	9
	2.3.	Valuation	10
	2.3	.1 Foundations of Value	10
	2.3	.2 Discounted Cash Flow	12
	2.3	.3 Valuation Multiples	15
_	2.3	.4 Intrinsic Value of Companies	18
3.	Literature	Review	. 19
	3.1.	Foundation for Current Research	19
	3.2.	CSR Rating and Performance	19
	3.2	.1 SR companies	19
	3.2	.2 Bad Companies	20
	3.3.	Money Flow Effects on Stock Prices	21
	3.4.	Business Ethics and Valuation	22
	3.5.	Hypotneses	23
4.	Wethodolo	ogy	25
	4.1.	Methodological Approach	25
	4.2.	Data	26
	4.2	.1 Sample and Selection Procedure	26
	4.2	2 Descriptive Statistics of the Samples	27
	4.2	.3 Choice of valuation Multiples	29
	4.2	.4 Sourcing of Data	29
	4.2	6 Delimitations	30
	4.2	Method	5Z
	4.3.	1 Hypothesis Testing	2/
	4.5	 Student's t-Test: Paired Two Sample for Means 	25
5.	Empirical I	Results	36
	5.1.	Statistical Hypotheses Testing	
5.1.1 Hypothesis 1		.1 Hypothesis 1	
	5.1	.2 Hypothesis 2	37
	5.2.	Development over Time	38
	5.2	.1 Bad Companies Trend Analysis	38
		· · ·	

	5.	2.2	SR Companies Trend Analysis		
	5.3.	Rol	bustness Test		
6.	Analysis a	and I	nterpretation		
	6.1.	Dis	cussion of Empirical Results	41	
	6.	1.1	Premium for Bad Companies	41	
	6.1.2		Premium for SR Companies	43	
	6.	1.3	Effect of Change of Investors' Ethical Perception	44	
	6.2.	Imj	olications	46	
	6.	2.1	Implications for Investors	46	
	6.	2.2	Implications for Managers	47	
	6.3.	Fur	ther Research	47	
7.	Conclusio	on			
8.	Reference	es			
9.	Appendices			57	
	9.1. Appendix 1: Guidelines for the observation and exclusion of companies from			s from	
		the	Government Pension Fund Global's investment universe	57	
9.2. Appendix 2: Overview of Companies in the BBSINDEX				60	
	9.3. Appendix 3: Overview of Companies in the SRINDEX				
	9.4.	Ар	pendix 4: Result of Student's t-Tests	62	
	9.5.	Ар	pendix 5: Frequency Histograms and Probability Plots	65	

TABLES, FIGURES AND EQUATIONS

TABLE 5-1 FINDINGS BAD COMPANIES	
TABLE 5-2 FINDINGS SR COMPANIES	
TABLE 5-3 ROBUSTNESS TEST	

FIGURE 4-1 METHODOLOGY	25
FIGURE 4-2 OVERVIEW OF COMPANIES IN SRINDEX PER INDUSTRY	28
FIGURE 4-3 OVERVIEW OF COMPANIES IN BBSINDEX PER INDUSTRY	28
FIGURE 4-4 PROBABILITY PLOT BEFORE LOG TRANSFORMATION	31
FIGURE 4-5 PROBABILITY PLOT AFTER LOG TRANSFORMATION	31
FIGURE 4-6 FREQUENCY HISTOGRAM BEFORE LOG TRANSFORMATION	32
FIGURE 4-7 FREQUENCY HISTOGRAM AFTER LOG TRANSFORMATION	32
FIGURE 5-1 P/E, P/B AND EV/EBITDA FOR BBSINDEX VS. BENCHMARK	38
FIGURE 5-2 P/E, P/B AND EV/EBITDA FOR SRINDEX VS. BENCHMARK	39

EQUATION 2-2 KEY VALUE DRIVER FORMULA
EQUATION 2-3 WACC CALCULATION
EQUATION 2-4 CAPM
EQUATION 2-5 JENSEN'S ALPHA
EQUATION 2-6 EXPECTED TOTAL PORTFOLIO RETURN
EQUATION 2-7 FAMA-FRENCH 3 FACTOR MODEL14
EQUATION 2-8 P/E RATIO ACCORDING TO KOLLER ET AL. (2010)16
EQUATION 2-9 P/E RATIO COMMONLY CALCULATED
EQUATION 2-10 P/B RATIO COMMONLY CALCULATED
EQUATION 2-11 EV/EBITA CALCULATION
EQUATION 4-1 INDEX MEAN VALUE CALCULATION

GLOSSARY

B/M – Book-to-Market ratio	IR – Investment Rate
BBSINDEX – Bad Brake Sakkestad Index	MPT – Modern Portfolio Theory
BE – Business Ethics	NBIM – Norges Bank of Investment
CAPM – Capital Asset Pricing Model	Management
CFP – Corporate Financial Performance	NOPLAT – Net Operating profit Less Adjusted Taxes
CG – Corporate Governance	NPV – Net Present Value
COC – Cost of Capital	P/B - Price-to-Book Ratio
CSP – Corporate Social Performance	P/E - Price-to-Earnings Ratio
CSR – Corporate Social Responsibility	OE – Quantitative Easing
CSV – Creating Shared Value	RI – Reputation Institute
DCF – Discounted Cash Flow	ROC – Return on Capital
DY – Dividend Yield	ROE – Return on Equity
EMH – Efficient Market Hypothesis	ROIC – Return on Invested Capital
EPS – Earnings per Share	RONIC – Return on New Invested Capital
ESG – Environmental, Social and	SML – Security Market Line
Governance	SR – Socially Responsible
EV/EBITDA Enterprise Value to	SRI – Socially Responsible Investing
EBITDA	SRINDEX – Socially Responsible Index
FFM – Fama-French Three Factor Model	WACC – Weighted Average Cost of
GPFG – Norwegian Government Pension	Capital
Fund Global	

1. Introduction

"The social responsibility of business is to increase its profits" -Milton Friedman-

1.1. Background

Corporate finance theory suggests that in a perfect investment world the only price determinants of assets are risk and return. However, since the real world is far from perfect and the actors are human beings driven, amongst other things, by emotion, common sense dictates that there are other factors influencing a company's valuation. What these factors may be can differ between individuals.

Investment decisions that, next to financial analysis, are based on ethical, social and environmental considerations are known as ethical, or socially responsible, investment decisions. The term socially responsible investing (SRI), as well as vice investment that describes exactly its opposite, have both gained momentum amongst investors over the past decades. However, the notion of ethical investing is not a new one. In the early biblical times, Jewish law laid the foundation to what nowadays is called SRI by giving directions on how to invest ethically. It is believed that nearly 1800 years later Methodists and Quakers brought the concepts to the new world. Quakers never invested in either war or slavery and Methodist have been using social screens for over 200 years to manage their money (Schueth, 2003).

Kreander (2001) describes how SRI evolved during the 20th century from the early religionbased principles towards the recognition of variations in ethical and social conventions. Since the 1960s, when anti-war groups started to question the business ethics of companies producing weapons and arms, the modern SRI has found strong support throughout the second half of the last century. Issues quickly broadened to include nuclear power, women empowerment and labour issues in the 1970s. The Chernobyl disaster in 1986 helped the cause of those supporting SRI; however, it was the political situation in South Africa and the suppression of the black majority enforced by a white minority that put the issue on the radar of state pension funds in the US (Kreander, 2001). They started screening the companies they were investing in for involvement in South Africa and subsequently excluded any company involved in that country from their investment universe. After the late Nelson Mandela became president in 1994, this screen was dropped. These funds, and their international counterparts, however still screen for oppressive regimes and human right infringements (Kreander, 2001). Today, this segment of the US financial industry involves over \$2 trillion professionally managed assets (Schueth, 2003). One of the most famous and rigid funds using ethical screens to determine its investment universe is the sovereign wealth fund, Norwegian Government Pension Fund Global (GPFG) managed by Norges Bank of Investment Management (NBIM). It uses negative screening to restrain from investing in companies that are involved in socially irresponsible conduct, violate fundamental humanitarian principles or ethical norms, or severely damage the environment. On the other side of the spectrum there are funds like the Vice Fund in the US that have been trying to outperform the market by investing in sin stocks. They deliberately try to exploit investment opportunities often left out by funds that use negative screening as they think that these industries thrive regardless of the economy as a whole (USAMutuals, 2014).

1.2. Problem Discussion

Much research has been undertaken to investigate whether either of these funds, or their peers, are generating risk-adjusted returns that are different to funds that do not limit their investment universe. Modern Portfolio Theory suggests that funds that have a restricted investment universe increase their risk by restricting diversification, without being awarded for doing so. Consequently, returns should be lower for these funds. However, researchers do not seem to be able to conclusively prove any over or underperformance.

There seems to be an agreement that ethical funds and companies that are involved in CSR do not outperform the market (Lam et al, 2012; Lobe & Walkshäusl, 2011; Kreander et al, 2005). This indicates that being ethical and socially responsible does not have an effect on an investors' portfolio in terms of returns. Investing in sin stocks, on the other hand, is a little more controversial. Dan Ahrens (2004) suggests, based on anecdotal evidence, that investing in sin stock can generate excess returns as the market attaches a discount to companies involved in 'recession-proof' industries, such as tobacco, alcohol and gambling. Shank et al., (2005), however, contradict Ahrens' findings and find no conclusive evidence that investing in vice is either morally appropriate or financially sound.

Even though there has been a significant amount of research on the topic of CSR and returns, considerably less has been done to investigate whether it influences a company's valuation. Some researchers have suggested that companies that are known for good CSR and business ethics (BE) are valued at a premium due to a reduction in WACC (Pae & Choi, 2010). These previous findings are, however, weak. In addition, no similar research has been done on bad

companies. The approach taken in this paper helps to establish an initial idea of how investors' ethical perception affects the valuation of SR and bad companies.

1.3. Research Purpose

In contrast to most of the previous research, this study is not aimed at investigating the riskadjusted returns of funds or portfolios of individual investors. It is rather exploring if being socially responsible, or bad, has an influence on corporate valuation measured by certain ratios, namely the price-to-earning (P/E), price-to-book (P/B), and enterprise value-to-EBITDA (EV/EBITDA) multiples. This is found to be a very interesting approach that has not seen a lot of attention in research, yet. One reason for this can be that the theoretical framework of valuation suggests that the future value of being socially responsible should be reflected in current earnings through demand for the company's products or service. Investors' perception should therefore not affect valuation multiples. However, taking fundamental economic principles about supply and demand of owning shares in a specific firm into account, a different picture can be drawn: the authors believe that the aforementioned trend of SRI has increased the demand for SR companies' shares and similarly decreased demand for bad companies. Supply and demand models dictate that this results in a difference in market pricing. This would directly contradict Koller et al.'s (2010) statement that profitability, measured as return on invested capital (ROIC), and growth are the only value drivers for companies.

Therefore, the goal of this research is to investigate whether SR and bad companies, as defined by Reputation Institute (RI) and NBIM, respectively, are valued differently than their respective industry benchmarks. To do so, companies are segmented into socially responsible (SR) companies and socially not responsible (bad) companies through passive ethical screening. Then, their respective P/E, P/B and EV/EBITDA multiples during a 20-year period (Q1 1994 – Q1 2014) are compared to each corresponding benchmark to check for differences in pricing, using matched pairs analyses.

The hypotheses in this paper are aimed at analysing whether a difference can be found when comparing multiples, and subsequently investigating whether the difference is in the form of a premium or a discount.

1.4. Research Questions and Objectives

In order to investigate the correlation between CSR and companies' market valuation the following research questions constitute the focus of this study:

Main Research Question

companies due to their CSR reputation.

 How are valuation multiples affected by investors' ethical perception? The objective is to find out whether premiums and/or discounts are attached to

In order to answer the main research question, the following sub-research questions are investigated.

Sub-Research Questions

1. To what extent does market pricing imply an expected premium for SR companies and a discount for bad ones?

The objective is to investigate whether the differences, if there are any, behave intuitively, i.e. that bad behaviour is punished by investors, whereas good behaviour is rewarded.

2. If there is any significant difference attached, how has that difference evolved over time?

The objective is to compare the constructed indices with the benchmark indices over a twenty-year period to see how the change in investors' perception has affected market pricing of companies.

To justify and support the choice of research questions, a theoretical framework is outlined. The samples of SR and bad companies are compiled and valuation data is collected. Matched pairs and time series analyses is utilised to investigate the correlation between CSR characteristics and market valuation.

1.5. Limitations and Delimitations

Even though Datastream has provided a rich data set on historical accounting figures, several factors limit the scope of this research and set boundaries to its applicability. Firstly, by investigating market pricing using valuation multiples, the data available is limited to listed companies. Secondly, due to time limitations, no ethical screening is actively applied, meaning that either NBIM (in the case of bad companies) or RI (in the case of SR companies) did the screening. Thirdly, the comparability of the samples is an important delimitation. In some industries, there is only one constituent on NBIM's list of exclusion, meaning this sample is not necessarily representative for the whole industry as characteristics like size,

accounting policies and leverage could play a role here as well. Hence, focus has been laid on industries with more constituents by weighting the findings according to number of constituents. Furthermore, the benchmarks that are applied to compare the bad and SR companies are identified by industry and geographical location. Other characteristics are neglected since for most benchmarks the number of constituents in the index is sufficiently big to balance out other characteristics. Furthermore, the data retrieved from Datastream was limited to quarterly data and, in some instances, is simply incorrect, unavailable or classified as outliers, which made elimination of this data necessary.

1.6. Report Outline

This thesis comprises seven chapters. In the next chapter, the definitions of relevant topics are given and their theoretical framework is described. The third chapter provides a review on relevant existing literature, the secondary research. The fourth chapter is comprised of the primary research, including the data collection and method used. In chapter five the results of the tests, i.e. the empirical evidence, is presented and in chapter six, these results are analysed and interpreted. Chapter six further includes discussion, implications and suggestions for further research. Chapter seven contains the conclusion of this paper.

2. Theoretical Framework

Chapter two provides an overview of relevant theoretical concepts including definitions and explanations of business ethics, corporate social responsibility and valuation. The theory presented is essential as a foundation for the reader to be able to comprehend the empirical evidence and understand how investors' ethical perception influence valuation multiples.

2.1. Business Ethics

Business ethics is a broad term that deals with ethical principles, morals and problems that arise in a business environment. Several definitions exist and the common denominator is that business ethics encompasses how ethical values and moral influences the behaviour of firms, and that it reaches further than laws as it is based on societal norms. The implications of this is that companies can exhibit poor business ethics without breaking the law, and that ethics implicitly regulate behaviour in areas that lie beyond governmental control. The Institute of Business Ethics define business ethics as:

"Business ethics is the application of ethical values to business behaviour. Business ethics is relevant both to the conduct of individuals and to the conduct of the organisation as a whole. It applies to any and all aspects of business conduct, from boardroom strategies and how companies treat their employees and suppliers to sales techniques and accounting practices. Ethics goes beyond the legal requirements for a company and is, therefore, about discretionary decisions and behaviour guided by values." (Institute of Business Ethics, 2014)

The concept of business ethics became mainstream during the 1980s and 1990s, because of the savings and loans crisis (Jones et al., 2005). Its importance increased after several corporate scandals in the early 2000s, such as the Enron, WorldCom and Tyco scandals. It was the emergence of large corporations with limited relationships and sensitivity to the communities in which they operate that accelerated the development of formal ethics regimes (Jones et al., 2005). Subsequently, most companies today promote their commitment to non-economic values and measure their performance based on financial, social and environmental indicators. The main topics of BE applicable for this research are outlined in the next section of this paper. CSR and stakeholder versus shareholder theory lay the foundation for SRI, which has aroused a lot of interest from investors and consumer.

2.1.1 Corporate Social Responsibility

Corporate Social Responsibility (CSR) is a term widely used amongst scholars and managers and commonly refers to the responsibilities of a firm to society in four domains: economic, legal, ethical, and discretionary (Halpern & Snider, 2012). McWilliams and Siegel (2000) argue that the concept is ambiguous by nature, and that consequently there is no universally accepted definition. Even though there is a lack of consensus on the exact definition, most available definitions in the literature agree that CSR involves "doing good" for the society at large, employees and the environment (McWilliams & Siegel, 2000). Companies that are committed to CSR often implement the concept of "triple bottom line" accounting. This approach adds two more "bottom lines" to the traditional profit measure, being social and environmental concerns (Bader, 2008). Several institutions, such as Reputation Institute, the FTSE Group and Dow Jones rate companies based on their efforts to promote positive social and environmental change that go beyond what is required by law (Reputation Institute, 2014). Some industries are often absent from such rankings and CSR research on ideological grounds due to the very nature of the industries (Halpern & Snider, 2012). Typical industries include sin industries such as tobacco, alcohol and weapon manufacturers. Even though they do not break any laws, societal norms have a negative impact on the market's ethical perception of companies involved in such industries. Whether CSR is seen as a short-term cost or a long-term investment depends on the company's stance towards shareholder and stakeholder theory.

2.1.2 Shareholder and Stakeholder Theory

Milton Friedman emphasises the economic domain and argues that "corporate executives' responsibility generally will be to make as much money as possible while conforming to their basic rules of the society, both those embodied in law and those embodied in ethical custom" (Friedman, 1970). Friedman's main point from his widely cited article is sometimes misinterpreted as "do anything you can to make a profit", which is incorrect as the author highlights the importance of maximising profits only in a legal and non-deceptive way. This shareholder perspective has gained in popularity over the past decades due to investors' increased awareness that many managers might not be trying to maximise profits. This is partly the result of Friedman's arguments, supported by Jensen and Meckling (1976) who introduce "principal-agent" conflicts, arguing that executives fail to maximise profits unless shareholders create appropriate incentives and monitor their behaviour. According to the

shareholder theory, a reputation for being socially responsible (SR) should solely be considered a cost and therefore destroy value (Friedman, 1970).

Companies regularly face challenging dilemmas as ethical considerations may be in tension with economic considerations. In addition, societal norms change over time and across cultures. Stakeholder theory relates to CSR in that the society becomes a stakeholder for the firm, and that the society's issues become the firm's issues (Halpern & Snider, 2012). In contrast to the shareholder theory, the stakeholder theory demands that interests of all stakeholders must be taken into consideration even if it reduces profitability in the short run. The underlying assumption behind this is that balancing all stakeholders' interests is necessary to be able to please shareholders, whose main interest usually is profit. It was originally detailed by Freeman (1994) who argues that "economic value is created by people who voluntarily come together and cooperate to improve everyone's circumstance". Porter and Kramer (2006) support the stakeholder theory by introducing the concept Creating Shared Value (CSV). They argue that the shareholder theory focuses on a short-term perspective, and that businesses should focus on CSR activities that will be mutually beneficial for all stakeholders and in turn maximise long-term shareholder value. According to the stakeholder theory, a reputation for being SR would indicate a well-balanced stakeholder approach and thus be value creating even for shareholders. This would in turn improve investors' belief about the company's future generation of free cash flows.

2.1.3 Socially Responsible and Vice Investing

Concepts like BE and CSR have increased in importance in the corporate world. Similarly, the demand for ethical investment opportunities amongst investors is greater than ever. This trend is driven by investors' desire to invest their money in companies that act in a socially responsible way and with increased transparency. Combined with the belief presented by the stakeholder theory this would indicate that these companies provide profitable investment opportunities. As a result, several funds that specialise in SRI have emerged, such as Pax World Fund that pursue an investment strategy focusing on *"Full integration of Environmental, Social and Governance factors (ESG) into investment analysis and decision making"* (About Pax World, 2014). These funds that use a positive screening methods to determine which companies to invest in. Funds that use a positive screening technique choose those companies that rank highly in regards to certain criteria related to CSR. A negative screening approach excludes companies that do not fulfil certain requirements set out by the fund. Such requirements typically exclude companies involved in sin industries. Several

institutional investors, such as pension funds and sovereign wealth funds, have adopted similar negative screening methods, potentially reducing the overall demand for investing in sin stocks and companies with a poor CSR reputation (NBIM, 2010). In contrast to the trend with SRI funds, a few funds specialising in sin stocks have emerged. The Vice Fund, founded in 2002, is as previously mentioned a famous US based fund that exclusively invests in companies in the gambling, alcohol, tobacco and defence industry (USAMutuals, 2014). Nonetheless, funds focusing on SRI by far outweigh those directed towards sin stocks.

2.2. Modern Portfolio Theory

Investors, institutional as well as individual, are constantly subject to the pressure of maximising returns at a given risk appetite. Ideally, the return should be large whilst only encountering minimal risk. In order to achieve this, investment portfolios have to be well diversified (Gruber et al., 2011). How diversified depends on the investment style and risk appetite of the individual and the fund manager, respectively. Making decisions about investment mix and policy, asset allocation and matching risk and return is the essence of Modern Portfolio Theory (MPT) and portfolio management. Many trade-offs, including debt versus equity, growth versus safety, CSR efforts versus costs, have to be dealt with in order to find an adequate strategy to satisfy the need for returns with a given risk profile (Gruber et al., 2011).

Regarding this research, MPT is particularly interesting when discussing restrictive portfolio decisions. Restricting a portfolio in essence means to decide not to include particular assets. The reasoning behind such decisions depends on the motivation the investor has to restrict his or her portfolio. By restricting, the investor essentially makes the portfolio less diverse (Gruber, et al., 2011). Theoretically, this results in an increase the riskiness of the portfolio, without rewarding the investor in the form of higher expected returns. If these returns are not greater than the returns achieved with an unrestricted portfolio, restricting ones portfolios comes at a cost.

In order to be able to have a well-diversified portfolio, investors have to have good knowledge of the market and what companies are present. This includes information about the risk and expected return to determine the price they should pay for one share in a company, thus forming the basis for valuation theory.

2.3. Valuation

The overall aim in valuation is, simply put, to determine what something is worth. In a corporate finance context, analysts do so by investigating an asset's ability to create value. Specifically, they look at the two core principles of value creation. The first principle is that return on invested capital (ROIC) and growth drive the generation of cash flows and subsequently value. The second principle is according to Koller et al. (2010) known as the conservation of value principle, that anything that does not increase cash flow does not create value, unless it reduces risk. To determine what these future cash flows are worth today, they are discounted using the weighted average cost of capital (WACC) to derive a net present value (NPV) of an asset. This is the very foundation for the widely used discounted cash flow (DCF) technique, which is an absolute value model. There are three general valuation models that are commonly referred to in academic finance, being absolute value models, relative value models and option pricing models (Koller et al., 2010). In this paper, absolute and relative value models are examined. Their aim is identical, to derive the intrinsic value of an asset. This intrinsic value, often referred to as the fair value or market value, is affected by the subjective opinion of financial analysts, and should not be regarded as truth. Nevertheless, it gives a good indication of whether an asset is mispriced based on the core principles of value creation. This section deals with the topics mentioned above, being foundations of value, core valuation techniques and the intrinsic value of companies. Due to the scope of this thesis, the emphasis lies on valuation of publicly listed companies, and company shares will therefore be used as an example, even though the same would be true for many types of investments, such as bonds and derivatives.

2.3.1 Foundations of Value

As previously mentioned, investors in the stock market make investment decisions based mainly on risk and return characteristics of the company. When determining the likely return on an investment, an estimation of the company's ability to create value for its shareholders is essential. The conventional wisdom is that investors will require a rate of return that is higher than the risks they take, yielding the firm's cost of capital. Koller et al. (2010) argue that the concept of value is superior to alternative measures, such as for instance earnings or employee satisfaction, as it includes the long-term interests of all stakeholders. They state that companies create value by investing capital raised from investors to generate future cash flows at rates of return exceeding the cost of capital. The faster companies can increase their revenues and deploy more capital at attractive rates of return, the more value they create. In

other words, the combination of growth and ROIC relative to its cost (WACC) is what drives value. The implication of this is the aforementioned conservation of value, meaning that activities that do not increase cash flows consequently do not increase value. Modigliani and Miller's (1958) findings, often referred to as the "Modigliani–Miller theorem", state that the value of a firm is unaffected by how that firm is financed. They argue that when a company substitutes debt for equity or vice versa, it changes the ownership of claims to its cash flows, but not the total cash flows available, thus proving the irrelevance of the capital structure to value creation. This theorem implicitly assumes that investors can borrow money at the same rate as the company. This is not always true with the presence of asymmetric information and the absence of efficient markets, or if the investor has a different risk profile than the firm. It also assumes that there are no tax advantages for issuing debt. For that reason, it is no surprise that the theorem has been challenged in the academic literature. One example is that Koller et al. (2010, p.501-502) show that tax savings from debt may increase the company's cash flows, thus affecting the intrinsic value of the company.

To assess a company's ability to sustain strong growth and ROIC, analysts rely on theory from business strategy, in particular related to competitive advantages. Competition tends to erode competitive advantages over time, followed by declining ROIC and consequently value. Technicall, the task is to assess the company's future ability to generate return on new invested capital (RONIC) at a rate higher than the WACC. As this is subjective by nature, valuation is often considered an art, rather than a science. There are no strict rules in valuation, but it is believed that the two principles about growth and ROIC should be considered as truths, otherwise the consequences can be disastrous (Koller et al., 2010). Historical examples such as the collapse of Japan's bubble economy in the 1990s, the dotcom bubble in the 2000s, the global financial crisis that begun in 2007 can all, to some extent, be traced back to the fact that these simple principles were not used in valuation. At the time of writing, the valuations implied by deals in the technology sector have made the authors question whether these principal lessons of valuation and corporate finance have been neglected yet again. It is believed that stock markets are valued highly due to large quantitative easing (QE) that are set to decrease, thus impacting companies' ability to grow and maintain a high ROIC. This was supported by the actions of the respected investor, George Soros, who as of February 2014 was betting against a raising Dow Jones Index (Observer, 2014). Market valuations that cannot be justified using the fundamental drivers of value can only be explained by taking into account real options that in the future can greatly affect these drivers. Typical examples are real business opportunities for ceasing or expanding projects if certain market conditions occur. It is believed that current valuations in the technology sector, such as \$19 billion for WhatsApp¹, cannot be justified by solely looking at the fundamental drivers of value. This indicates that there is more to valuation than profitability and growth.

2.3.2 Discounted Cash Flow

After having identified and assessed the key drivers of value, the DCF approach can be very useful to quantify the results. The DCF model is the favourite absolute model amongst practitioners and academics because it relies solely on the flow of cash in and out of the company, rather than on accounting-based earnings (Koller et al., 2010). The discounted economic-profit valuation model also is a popular tool, but is not discussed in this paper as it is built on the same principles as the DCF-model. As implied by the name, the DCF-model discounts future income streams at WACC, and is therefore suitable when a company is expected to maintain a relatively stable capital structure. The discounted value of free cash flow is the cash flow available to all investors – equity holders, debt holders, and any other non-equity investors, discounted at WACC. Koller et al. (2010) define free cash flows as Net operating profit less adjusted taxes (NOPLAT) + non-cash operating expenses - investments in invested capital.

Equation 2-1 DCF Valuation

$$DCF = \sum_{t=0}^{n} \frac{Free \ cash \ flow_t}{WACC}$$

The formula shows that the sum of all future cash flows, both inflows and outflows, is equivalent to the net present value (NPV), in other words the value of the cash flows. It is common practice to value the whole enterprise using the DCF approach and then subtracting the value of any non-equity financial claims (debt) and add back non-operating assets to derive at the equity value. To estimate price per share, the equity value is simply divided by the number of shares outstanding.

As mentioned before, Koller et al. (2010) argue that the key value driver formula is all there is to valuation, and that the rest is mere detail. Nonetheless, it is not commonly used in

¹ In February 2014, Facebook announced that it was buying the mega messaging service WhatsApp for US \$19 billion

practice as it assumes a constant ROIC and growth rate going forward which is rarely applicable to reality. The key value driver formula, when using the DCF approach, is defined by Koller et al. (2010) as:

Equation 2-2 Key Value Driver Formula

$$Value = \frac{NOPLAT_{t=1}(1 - \frac{g}{ROIC})}{WACC - g}$$

where $NOPLAT_{t=1}(1 - \frac{g}{ROIC})$ is the definition of free cash flow.

NOPLAT represents the profits generated from the company's core operations after subtracting the income taxes related to the core operations.

 $\frac{g}{ROIC}$ is used to account for the portion of *NOPLAT* invested back into the business, the investment rate (IR), defined as $IR = \frac{Net \, investment}{NOPLAT}$. Growth (g) is the rate at which the company's NOPLAT and cash flow grow each year. Weighted average cost of capital (WACC) is the rate of return that investors expect to earn from investing in the company and therefore the appropriate discount rate for the free cash flow. The formula for WACC shows that it is positively correlated with the expected return on equity and debt, and negatively correlated with the corporate tax rate as in most cases interest payments on debt are regarded as a deductible expense. This holds given that the company is profitable.

Equation 2-3 WACC Calculation

$$WACC = r_e \frac{E}{D+E} + r_d (1-t) \frac{D}{D+E}$$

where *E* is equity, *D* is debt, r_e is the expected return on equity, r_d is cost of debt and *t* is the corporate tax rate. *E* and *D* require estimation of the fair market values, making calculation of WACC an iterative procedure. *t* is used to calculate the value of the tax shield. It is commonly accepted that there is a trade-off with having debt in the capital structure, with deadweight costs of financial distress on one side and tax saving benefits on the other side (Kraus and Litzenberger, 1973). The optimal level of leverage is a popular topic in amongst financial academics, but is nonetheless outside the scope of this paper.

Whilst r_d is usually directly observable, there are several models for estimating r_e , such as the Gordon Model, the Fama-French Three Factor Model (FFM) and the Capital Asset Pricing Model (CAPM). The common denominator for all of those is that they aim to

estimate the inherent risk exposure of the company and determine the required return on equity from that. As a firm's risk increases, the required return on equity increases as well. This is intuitive because if an investment's risk increases, capital providers demand higher returns or they will place their capital elsewhere. The standard CAPM was independently developed by William Sharpe (1964), John Lintner (1965) and Jan Mossin (1966). The formula is written as:

Equation 2-4 CAPM

$$\bar{r}_e = r_f + \beta_i (\bar{r}_m - r_f)$$

where \bar{r}_e is the expected return of stock i, r_f is the risk-free interest rate, β_i is the beta of stock i, and \bar{r}_m is the return on the market portfolio.

In order to describe the average return over the return predicted by CAPM, Jensen (1968) introduced his measure, Jensen's Alpha. His adjusted CAPM equation can be seen below. Equation 2-5 Jensen's Alpha

$$\propto_p = \bar{r}_p - [r_f + \beta_p (\bar{r}_m - r_f)]$$

where α_p is Jensen's measure, or alpha, \bar{r}_p is the expected total portfolio return, r_f is the riskfree rate, β_p is the beta of the portfolio and \bar{r}_m is the expected market return. Solved for the expected total portfolio return it can be expressed as:

Equation 2-6 Expected Total Portfolio Return

$$\bar{r}_p = r_f + \beta_p \big(\bar{r}_m - r_f\big) + \alpha_p$$

The FFM (Fama & French, 1993) is in essence an extension of the standard CAPM equation (including Jensen's Alpha) and includes two additional factors, small-minus-big (SMB) market cap and high-minus-low (HML) book-to-market ratio.

Equation 2-7 Fama-French 3 Factor Model

$$\bar{r}_p = \alpha_p + r_f + \beta_p (\bar{r}_m - r_f) + \beta_1 SMB + \beta_2 HML$$

where all variables are denoted the same as in the CAPM and Jensen's measure, except: β_p is the measure of a portfolio's or asset's exposure to market risk (will have a different value from CAPM due to the additional factors), β_1 is the measure of exposure to size risk, β_2 is the measure of exposure to value risk, SMB are the historic excess returns of small cap over big cap, and HML are the historic excess return of value stocks over growth stocks.

2.3.3 Valuation Multiples

The DCF approach is a widely used method to value companies in absolute terms, whilst valuation using multiples is the commonly used method for valuing companies in relative terms. The technique is used to estimate the value of companies by comparing it to the values assessed by the market of comparable companies. The challenge is to create an appropriate peer group, to use the right multiples and to measure the multiples properly.

A carefully conducted multiples analysis can supplement the DCF model by testing the plausibility of cash flow forecasts and explain mismatches between company's performance and those of its competitors (Koller et al., 2010). In addition, it gives valuable insight on what the market's perception is on strategic position and future ability to generate cash flows. Even though the aim with using multiples is the same as using the DCF approach, they are very different by nature. Multiples simplicity and ease of calculation make them an appealing and user-friendly method of assessing value. A DCF model's result often creates a false sense of comfort for analysts as the approach yields a very precise result even though the model relies on a large amount of forecasts that are impossible to predict accurately. Multiples therefore help avoiding the potentially misleading precision of other more sophisticated methods. The simplistic nature of valuation using multiples can also be considered a disadvantage as a large amount of information is distilled into a ratio. According to Hughes (2012), this might lead to overly simplistic interpretation. Just as coming up with sound forecasts is difficult with the DCF approach, creating a comparable peer group is difficult due to differences in areas such as accounting policies, industry characteristics and capital structure. The task is however essential in order to end up with valid findings. Another issue is that if the peers are incorrectly valued, such as during a stock market "bubble", then the resulting multiples will also be wrong. Despite these limitations, valuation is about qualitative judgement, and multiples provide a robust framework for making such judgements. Moreover, multiples are interesting from an academic standpoint as they provide information on the impact of different variables, such as reputation for CSR, on market pricing of public companies.

There is an extensive selection of ratios to choose from when determining which to use in an analysis. Contrary to the popular view that different industries have different "best" multiples, empirical evidence indicates that overall rankings of multiples are observed

consistently for almost all different industries (Liu et al., 2002). One of the most commonly used is the price-to-earnings (P/E) ratio, which is popular due to the importance attributed to earnings per share as a value driver (Koller et al., 2010). Similarly, the key value driver formula shows that a company's earnings multiple is driven by both, its growth and its ROIC. It is however, distorted by capital structure and non-operating gains and losses, and therefore puts strict requirements on the selection of comparable peers. The P/E for a company with constant growth and return on capital is according to Koller et al. (2010) defined as:

Equation 2-8 P/E Ratio according to Koller et al. (2010)

$$\frac{P}{E} = \frac{1 - \frac{g}{ROE}}{r_e - g}$$

The common way to calculate it in practice is:

Equation 2-9 P/E Ratio Commonly Calculated

$$\frac{P}{E} = \frac{Market \ value \ per \ share}{Earnings \ per \ share \ (EPS)}$$

where EPS is usually from the last four quarters (trailing P/E), but sometimes it can be taken from the estimates of earnings expected in the next four quarters (projected or forward P/E) (Investopedia, 2014). Liu et al. (2002) examine the valuation performance of a comprehensive list of value drivers and find that multiples derived from forecasted earnings explain stock prices remarkably well, justifying their popularity. In general, forward looking multiples can be used for valuation purposes, whilst the trailing ratios are commonly used when investigating historical market pricing.

Price-to-book-value (P/B) is another multiple that according to the Fama-French's Three Factor Model (1992) and Lewellen (2004) has great explanatory power of stock returns. Lewellen's (2004) findings provide strong evidence that dividend yield can be used, and weak evidence that the P/B and P/E ratios predict market returns in a sample between 1963 and 2000. The P/B ratio compares the market value of equity to the book value of equity.

Equation 2-10 P/B Ratio Commonly Calculated

$$\frac{P}{B} = \frac{Market \ value \ of \ equity}{Book \ value \ of \ equity}$$

where market value of equity is the market capitalisation, and book value of equity the value of the company's assets minus its liabilities. In some cases, intangible assets and goodwill are removed from the equation, as they often have no resale value. This ratio may be referred to as price-to-tangible-book-value and is useful to estimate whether an investor is paying too much for what would be left if the company went bankrupt. The P/B ratio is largely affected by industry characteristics such as capital intensity. A company operating in an industry that requires substantial capital investments will therefore generally trade at a lower multiple than companies whose earnings derive from the provision of a service. Nonetheless, compared to appropriate peers, the multiple can give an indication of the forward-looking investor confidence. Damodaran (2012) argues that there is a strong relationship between return on equity (ROE) and P/B, and that firms that have positive ROE trade at P/B above one, whilst firms with low ROE trade at P/B below one. This is interesting from investors' point of view as it implies that mismatches of P/B ratios and ROE indicate that the company is incorrectly valued by the market, and thus provides a good investment case.

Koller et al. (2010) argue that enterprise value-to-EBITA (EV/EBITA) conveys more about a company's value than any other multiple. The multiple is similar to the P/E ratio, but focuses on enterprise value, rather than share price, thus removing the impact of the capital structure. The formula for EV/EBITA illustrates that four factors drive the multiple: the firm's growth rate, the ROIC, the operating tax rate and WACC:

Equation 2-11 EV/EBITA Calculation

$$\frac{EV}{EBITA} = \frac{(1-t)(1-\frac{g}{ROIC})}{WACC-g}$$

As enterprise multiples are affected by the market's expectations on future growth, higher multiples are projected in industries with high growth potential and amongst growth stocks, whilst low multiples are expected for value stocks (Koller, et al., 2010). This highlights the importance of creating comparable peer sets based on which industry the company is operating in. A common alternative to EV/EBITA is EV/EBITDA, which also excludes the effect of leverage and is popular as depreciation is a non-cash expense, reflecting sunk costs,

not future investments. As valuation is based on future cash flows, sunk costs such as depreciation should not be included, which is why using EBITDA might seem superior to EBITA (Koller et al., 2010). In addition, EV/EBITDA is easily observable for most public companies in databases, making it a reasonable choice for many multiple analyses.

2.3.4 Intrinsic Value of Companies

The outcome of a thorough qualitative and quantitative analysis, using for instance the DCF model and/or valuation multiples, yields a company's intrinsic value which should be equal to its market price. Koller et al. (2010) present empirical evidence indicating that share prices reflect the core principles of value creation and are not influenced by earnings management, accounting results, or institutional trading factors such as cross-listings. If this holds, valuation multiples should not be impacted by investors' ethical perception of companies. It implies that such intangible factors should already be accounted for through the demand for the firm's products that in turn will influence the fundamental drivers of value.

3. Literature Review

Chapter three presents a review of the current literature and the research frontier related to how business ethics influences valuation. Moreover, this chapter investigates empirical research related to the impact of social responsibility on corporate performance, as this has often been the focus amongst scholars. After reflecting on the current state of research, the authors develop hypotheses, which form the focus of this study.

3.1. Foundation for Current Research

The corporate world has witnessed the resurgence of CSR as an influential topic over the past two decades. Sustainability issues were put on the agenda in the "Brundtland Report" which highlights the importance of "*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (WCED, 1987). The focus on CSR and business ethics has fostered the emergence of ethical funds and terms like "ethical investing" and "socially responsible investing". David Fay (2012) illustrates the importance and development of SRI: total funds of SRI in 2010 were \$569 billion from \$12 billion in 1995. This investment trend has attracted vast interest from scholars and does provide the foundation for this research paper.

3.2. CSR Rating and Performance

Early research assumed a link between good CSR and profitability. Several researchers have consequently investigated the correlation between corporate social performance (CSP) and corporate financial performance (CFP), without being able to reach consensus. The research has come to different conclusions on whether SRI funds under- or outperform conventional funds, which is believed to be due to differences in methodology and sample selection.

3.2.1 SR companies

Trudel and Cotte (2009) investigate the demand for consumer products and find that customers are willing to pay a premium for ethically produced goods. They also find that customers 'punish' unethical companies by demanding a discount on their products, and that the discounts demanded are bigger than the premiums they are willing to pay on ethical products. This is interesting for the purpose of this research paper as it indicates that a negative reputation weighs heavier than a positive reputation, which might be reflected in how investors' ethical perception influences market pricing.

Several researchers have performed matched pairs analyses to investigate the performance of ethical and non-ethical funds without being able to find any statistically significant difference (Kreander et al., 2005; Mallin et al., 1995). This is supported by Managi (2012) who finds no statistical difference in means and volatilities generated from the SRI indices and conventional indices in the US, UK or Japan. Managi uses the Markov switching model to identify bull and bear periods and investigates SRI during these periods of different market conditions. He finds that the long-run financial consequences of being socially responsible in investing are as good as other conventional businesses, independent of market conditions. Therefore, the hypothesis that pursuing social benefit comes at the expense of economic performance is rejected (Managi, 2012). In contrast to this finding, Orlitzky et al. (2003) argue that the mainstream claim that there is little generalisable knowledge about CSP and CFP is built on shaky grounds. Their meta-analysis of 52 studies, yielding a total sample size of 33,878 observations, shows that across studies, CSP is positively correlated with CFP (Orlitzky et al., 2003). They therefore argue that theoretically, portraying managers' choices with respect to CSP and CFP as a trade-off is not justified in light of 30 years of empirical data.

3.2.2 Bad Companies

Whilst the general trend amongst investors has been to look towards SRI, in 2002 Ahrens and his colleagues launched The Vice Fund focusing on sin stocks. Ahrens (2004) argues that investing solely in companies involved in sin industries yields abnormal returns. If Ahrens' argument holds, it would indicate that the market attaches a discount to bad companies as they are politically incorrect investments and that the excess return might come in the form of higher dividends. Even though The Vice Fund successfully has beaten comparable benchmarks, these findings can be assessed as anecdotal at best. Shank et al. (2005) challenge Ahrens by arguing that anecdotal evidence indicating that investing in vice is both morally appropriate and financially sound, cannot be confirmed. The portfolio of vice firms selected for their study failed to achieve significantly better risk-adjusted returns over the broader market in 2000-2003, a period of economic downturn (Shank et al., 2005). Lobe and Walkshäusl (2011) who empirically test the extent to which a screening of socially not responsible firms lead to a difference in their financial performance, support this. They find no evidence of a statistically significant difference in risk adjusted returns between sin indices and conventional benchmarks (Lobe & Walkshäusl, 2011). Interestingly, they find that the performance of sin indices is largely value-oriented and that growth stocks mainly

drive the performance of SRI indices. If this holds, it would indicate that bad companies trade at lower P/B ratios than SR companies.

In contrast to these findings, Merton (1987) examines the characteristics of bad companies that are neglected from SRI funds and claims that due to higher litigation risk, the expected return increases for these companies. This would translate into a negative relationship between CSP and CFP, which is supported by Hong and Kacperczyk (2009), who find that sin stocks outperform the market even after adjusted for higher litigation risk. These results imply that, due to higher litigation risk and consequently a higher risk premium, valuation multiples should be below average for bad companies.

3.3. Money Flow Effects on Stock Prices

As the early research on the correlation between CSP and CFP has been inconclusive and contradicting, the recent trend amongst scholars is to investigate drivers that can explain why these results differ. Renneboog et al. (2010) study the money flows into and out of SRI funds around the world. Their hypothesis is that increased demand for SRI yields a "smart money effect" causing CSP to be positively correlated to CFP. They do however fail to prove this hypothesis as the funds that receive more inflows neither outperform nor underperform their benchmarks or conventional funds (Renneboog et al., 2010). An interesting finding is that investors in SRI funds care less about past negative returns compared to investors in conventional funds. If this holds, this optimistic view on the future should be reflected by higher P/E and EV/EBITDA multiples for SR companies relative to comparable benchmarks.

Additionally, Renneboog et al. (2008) study whether the demand for SR companies is positively affected due to a signalling effect. They find that good CSR performance has a positive impact on stock prices, as it signals good management performance and increases investors' expectation about future financial performance (Renneboog et al., 2008). One implication of this is that SR companies should trade at above average multiples, whilst the opposite should be true for bad companies. Furthermore, they find that following an investment strategy focusing on going long in firms with the strongest shareholder rights and shorting firms with the weakest shareholder rights generated yearly abnormal returns of 8.5%, indicating that the market is inefficient. Moreover, recommendations from financial analysts have a large impact on the demand for certain stocks. Ioannou and Serafeim (2014) find that financial analysts' recommendations on SR companies have gradually shifted from negative to positive in the period 1993 - 2007. It is believed that this partly explains the

increase in demand for investing in SR companies, and indicates, ceteris paribus, higher valuation multiples for SR companies.

In contrast to Renneboog et al., (2008), Fama (1970) introduces the Efficient Market Hypothesis (EMH), which is a major topic in behavioural finance. It asserts that on financial markets, no investor can achieve abnormal results in any way due to "informational efficiency". It is categorised in three levels, the weak (asset price reflects all past public information), the semi-strong (same as weak, additionally prices instantly change to reflect new public information), and the strong (same as semi-strong, additionally prices instantly reflect even hidden or insider information). If the EMH holds, irrational behaviour of investors would not be systematic and considered noise in the results, which would not affect either long-term valuation or financial ratios of a company. Hence, according to Fama (1970), given that EMH holds, valuation multiples should not be affected by investors' ethical perception driving the demand for stocks, as it should be considered noise.

3.4. Business Ethics and Valuation

Pae and Choi (2010) investigate why companies with more comprehensive corporate governance (CG) have a value premium over companies with less comprehensive CG on the Korean stock market. They argue that the stronger a company's CG framework is, the lower its cost of equity and in turn its WACC. These findings are in accordance with Akerlof's (1970) famous argument that a reduction of information asymmetry would lead to a reduction of WACC. Similarly, Pae and Choi (2010) provide evidence that companies that have a strong commitment to business ethics also have a lower cost of equity. Even though Menz (2010) initially assumes the same by stating that "[...] *socially responsible firms are often regarded as economically more successful and less risky, they should have lower risk premia*" (p.117) his findings contradict this by showing that risk premium for SR companies are, ceteris paribus, higher than for bad companies.

Lam et al. (2012) investigate whether corporate environmental, social and governance (ESG) performance affects risk, return and stock valuation globally. They find that ESG conformance result in neither financial benefits nor costs. However, it does influence risk. Adopting positive ESG investment screens reduces systematic risk on a global scale and idiosyncratic risk in developed markets. Furthermore, they provide an explanation for the absence of abnormal returns by stating "*Globally, ESG performance has been priced in market to book ratios* [...]". Ioannou and Serafeim (2014) state that when financial analysts

see CSR as an agency cost they produce more pessimistic financial outlooks for companies with good CSR. Further, they show that during the past two decades that perception has shifted with the emergence of stakeholder focus. During the 1990s, analysts did indeed have a negative perception of CSR and assessed the financial outlook for CSR companies as negative. However, gradually they assessed CSR firms less pessimistic and eventually even optimistic.

3.5. Hypotheses

Taking into account the theory introduced throughout this chapter, several hypotheses are formulated. Koller et al. (2010) argue that a company's valuation should be a product of its profitability and growth. Similarly, representatives of modern corporate finance theory (for example Fama, 1970; Gruber et al., 2011; Jensen, 1968; Sharpe, 1964) suggest that market pricing of companies should solely be the result of risk and return characteristics. The authors however believe that ethical perception do play a role as well. Companies that are publicly traded are subjected to, and can be affected by, investors' behaviour. This behaviour can be affected by biases and trends other than solely risk and return characteristics. If, for instance, demand for a stock has changed due to exclusion from a huge pension fund's investment universe or an index, the share price of that company is affected which consequently changes its multiples (Shleifer, 1986; Coval & Stafford, 2007). The positive signalling effect attached to SR activities, which is highlighted by Renneboog et al. (2008), may change valuation multiples as good CSR can be interpreted as good management and ultimately lead to solid financial performance. According to simple supply and demand models, higher demand should equal a higher price and vice versa. If this is the case, there might exist incentives for companies to become more or less socially responsible.

Hence, the following hypotheses can be developed:

H1: There is a difference in valuation multiples for companies with a good CSR reputation relative to their benchmarks.

H2: There is a difference in valuation multiples for companies with a bad CSR reputation relative to their benchmarks.

Even though it is intuitive that bad companies are traded at a discount, and SR companies at a premium, the hypotheses are stated in such a way that difference in both directions can be proven statistically significant. The reason for this is that there has not been any previous

research conducted on the topic, hence, the authors do not want limit the scope of the research by excluding the possibility of finding statistically significant difference in either direction.

4. Methodology

This chapter presents the data and methods used to carry out this study. The purpose of the chapter is to facilitate understanding of how the data is collected, followed by descriptions of how indices are constructed and the data statistically processed. The aim is that the reader could replicate the study yielding the same findings. An overview of the methodology used can be seen in figure 4.1

Figure 4-1 Methodology



4.1. Methodological Approach

This study is quantitative by nature as the aim is to investigate a substantial amount of secondary data from public companies over a 20-year period (Q1 1994 – Q1 2014). It follows a positivist research philosophy, and is done in a deductive way and consequently involves the development of a theory that is subjected to a rigorous test (Saunders et al., 2009). The study is based on objective interpretation of facts and observations rather than subjective opinions. Since a causal relationship between certain numerical variables are investigated, this study is termed explanatory (Saunders et al., 2009). This study attempts to assess the relationship between companies' ethical reputation and market pricing. The hypotheses are testable propositions about variances between different indices. After testing these hypotheses, if needed, the theory will be modified in light of the findings.

In chapter three it was found that investors' interest for CSR has increased during the past two decades, and it is for that reason interesting to investigate to which extent this has impacted market pricing. To do so, time series analyses are performed and the results are plotted via line charts. This implies a longitudinal study approach, investigating the effect of investors' ethical perception over a period of time.

4.2. Data

4.2.1 Sample and Selection Procedure

Due to time limitations, no ethical screening is actively applied in this study, but it rather depends on screening performed by recognised institutions. To construct an index representing bad companies, i.e. companies that have a poor reputation in regards to CSR, companies excluded from the investment universe of the Government Pension Fund Global (GPFG) are used. GPFG is the largest sovereign wealth fund in the world (SWF Institute, 2014). It is administered by Norges Bank Investment Management (NBIM), and is known for its focus on SRI and regarded as pioneer on guidelines for excluding companies from its investment universe. Most of the companies are excluded for reasons that indicate that their focus on CSR is very limited. Reasons for exclusion include that they produce weapons that violate fundamental humanitarian principles through their normal use, or sell weapons or military material to states that are affected by investment restrictions (NBIM, 2010). The complete set of guidelines can be found in Appendix 1.

NBIM excludes companies on recommendation from the Council of Ethics, and always motivate their decision. Companies that are excluded using negative screening include, but are not limited to, Wal-Mart Stores Inc. for serious human rights violations and Rio Tinto Ltd. for severe environmental damage. These examples illustrate that the screening process is different from that of for instance "The Vice Fund" as it does not exclude companies solely due to the industry they are in, but rather based on a qualitative assessment. One exception is made when it comes to the tobacco industry. It is therefore believed that this screening process results in a sample that better represent companies with poor CSR reputation, compared to solely screening based on being involved in sin industries. The companies on NBIM's exclusion list together form the foundation of the "Bad Brake and Sakkestad Index" (BBSINDEX). A complete overview of the constituents can be found in Appendix 2.

Constructing a comparable peer group to the BBSINDEX is challenging due to differences in areas such as accounting policies, industry characteristics and capital structure. This study

uses a benchmark index constructed by using observations from several industry indices and weighting them according to the weight the corresponding companies have in the BBSINDEX. An example of how this is done in the study is that the multiples of the Indian chemical company Zuari Agro Chemicals Ltd. are matched with the average multiples in an index consisting of other Indian chemical companies (INDIA–DS Chemicals). They are then weighted according to Zuari Agro's weight in the BBSINDEX which is 1.72%. Appendix 2 includes the selected benchmarks for all constituents.

To construct an index representing SR companies, i.e. companies that have an outstanding reputation in regards to CSR, companies ranked highest by the Reputation Institute are used. RI performs the world's largest study of corporate reputations, best known via the Forbes-published "Global top 100 companies based on CSR rating" (Reputation Institute, 2014). According to RI (2014), "[...] *extensive international fieldwork indicates that seven key dimensions drive corporate reputation: products/services, innovation, workplace, governance, citizenship, leadership and financial performance*", which together form the foundation for how they rate companies. The top 60 companies from RI's CSR rating together constitute the Socially Responsible Index (SRINDEX) used in this study. To construct a comparable benchmark index, the same method as with creating a benchmark to the BBSINDEX is used. A complete overview over the constituents in the SRINDEX and the relevant benchmark indices used can be found in Appendix 3.

4.2.2 Descriptive Statistics of the Samples

For the SR company sample, from the initial 60 companies out of 14 different industries, seven companies are not listed on any stock exchange and no data could be retrieved. This study focuses on valuation multiples, which are only observable for publicly traded companies. One company, namely Heinz, had at the time of writing just been delisted, however is still included in the sample as observations are available for the majority of the time period. The number of companies per industry in the SR index is shown in figure 4.2.



Figure 4-2 Overview of companies in SRINDEX per Industry

From the initial sample of 63 companies, four are excluded from the BBSINDEX as they are subsidiaries of already included companies. Furthermore, tobacco companies are excluded from NBIM's investment universe merely for being involved in the production of tobacco rather than bad CSR. This does not indicate that their CSR reputation is worse relative to their peers. Including them in the BBSINDEX would result in statistical noise, which could dilute and falsify the results. Hence, the 19 tobacco companies on NBIM's list are disregarded for this research.

One company, namely EADS Finance BV, is listed in Datastream as Airbus Group and included as such. The total number of companies in the BSSINDEX is 39, and an overview per industry is found in figure 4.3.





In total 22 356 observations over a 20-year period are made to construct the indices that are matched with relevant benchmark indices. The complete list of companies, including their names, their industry and their corresponding benchmark index can be found in Appendix 2.

4.2.3 Choice of Valuation Multiples

The three multiples used in this study are P/E, P/B and EV/EBITDA, which are all thoroughly evaluated in chapter two. P/E and P/B are used as they are commonly used to compare company valuations and are recognised to have great explanatory power in the literature. P/E and P/B fail to exclude the effect of different capital structures, thus requiring great precision in selection of comparable peers. As a result, this study additionally makes use of the EV/EBITDA ratio, as it excludes the effect of leverage and is popular as depreciation is a non-cash expense, reflecting sunk costs, not future investments. As valuation is based on future cash flows, sunk costs such as depreciation should not be included, which is why the authors believe that using EBITDA is more adequate than EBITA. In addition, EV/EBITDA is easily observable for most public companies in databases, whilst EV/EBITA is not, making EV/EBITDA suitable for this study. As this study evaluates historic data, the multiples are based on the previous year's reported earnings, book values or EBITDA rather than next year's forecast.

4.2.4 Sourcing of Data

For this study, the data has been sourced using software accessed through the Lund University Finance Lab. Datastream is the main source for data collection, both in regards to data for individual companies in the BBSINDEX and SRINDEX as well as for benchmarks. This is partly because the required multiples are directly observable in those datasets, and partly because the calculations are done in a consistent way with both benchmark indices and sample companies. After observing the observations in Datastream, the indices' mean multiples used in the analyses are calculated in Excel by using the following equation: **Equation 4-1 Index Mean Value Calculation**

$$M_p = \sum_{i=1}^n w_i M_i$$

where M_p is the index's mean value multiple, w_i is a stock's weight in the index and M_i is a stock's observed multiple.

4.2.5 Reliability and Validity

To test the robustness of the statistical results in this study, the underlying assumptions in regards to the samples' distribution when using the t-Test are of great importance. The assumptions (University of Glasgow, n.d.) are that:

- The samples being compared should have a reasonably symmetrical distribution
- The samples being compared should have a mean which is close to the centre of the distribution
- The distribution should have only one mode

These assumptions are similar to those of normally distributed data, indicating that a t-Test will work best on normally distributed data. This study consequently makes use of the Anderson-Darling normality test to assess whether the samples are normally distributed. Even if the data is not normally distributed, the central limit theorem indicates that t-Tests with sample sizes of at least 30 will still work (University of Glasgow, n.d.). As this study makes use of 81 sample means, the data sets are believed to be adequate. To further assess the robustness of the statistics, this study constructs frequency histograms and probability plots to evaluate whether the implicit requirements for using the t-Test are met.

Outliers are usually a source of non-normality and removing these yields increasingly normally distributed data. The researchers consequently deleted observations with extreme values to increase normality. To further increase the reliability and validity of the findings, this study uses log transformations on the observations in the respective samples. If the distribution of a variable has a positive skew, taking a natural logarithm of the variable helps fitting the variable into a model (Princeton University, n.d.). The effect of doing so can be seen in figures 4.4 - 4.7, illustrated by frequency histograms and probability plots before and after log transformation of P/B multiples for BBSINDEX matched with means for the relative benchmarks. This particular ratio is chosen, as it is the least normally distributed, prior to the log transformation. These examples illustrate that the transformation increases the explanatory power of the model, as R_2 increase from 0.86 to 0.9224, indicating a higher correlation between the samples.




Figure 4-5 Probability Plot After log Transformation





Figure 4-6 Frequency Histogram Before log Transformation





4.2.6 Delimitations

Even though the data used in this paper contains no tertiary data as it is sourced directly from Datastream, there are some delimitations that the authors consider when analysing the results and the reader should be aware of. The following section identifies and explains these delimitations.

Selection Bias

Most of the companies in BBSINDEX and SRINDEX take part in the respective benchmark indices that they are compared with, causing a selection bias. This dilutes the statistical inference, indicating that if they had been filtered out of the different benchmarks, the findings would have experienced increased significance. Most of the benchmark indices used do however consist of several hundred companies, indicating that the effect would have been marginal and has thus been neglected.

Other Explanatory Factors

The chosen valuation multiples are believed to provide valuable insight on how investors' ethical perception of companies affect market pricing of stocks. They might however be impacted by explanatory factors, other than industry characteristics and geographical location, which are the only ones considered when creating comparable indices. One such delimitation is that the dataset has not been adjusted for market capitalisation.

Outliers

Due to the nature of valuation multiples, firms with periodically particularly low earnings can have extreme multiples. Consequently, based on a subjective assessment, the researchers decided to exclude individual observations where any of the ratios are higher than 100. Such observations are classified as outliers as their impact on the portfolios average multiple is not proportional to their size. Choosing a cut-off point different from 100, such as 75 or 125, would influence the findings and can therefore be considered arbitrary. As a limited number of outliers are identified in the dataset, the sensitivity to this cut-off point is, however, believed to be marginal. In addition, all P/B ratios with a negative value are excluded, as they are believed to be erroneously recorded.

Subjective Choice of Benchmarks

The relevant benchmark indices are constructed using a subjective assessment of industry characteristics and geographical location. Their relevance and objectivity to the BBSINDEX and SRINDEX, respectively, can consequently be questioned.

Limited Selection of Valuation Multiples

P/B, P/E and EV/EBITDA all have different characteristics and bring different dimensions to the analysis, but the interpretation of these three is limited by nature. By extending the selection of multiples to include for instance EV/EBIT, P/S and the PEG ratio, more conclusive findings could have been made.

Choice of Study Period

The study period used is a 20 year period, from Q1 1994 – Q1 2014, which is considered an extensive period. Some of the companies have not been publicly listed throughout this period, lowering the reliability of the findings particularly in the early years of the period. Furthermore, it might be possible that some of the companies have changed their conduct towards CSR throughout the period. For instance, a company could have looked negatively upon CSR 15 years ago but are very strong in CSR conduct today. This is found to be difficult to filter out within the timeframe of this project and has as a result been disregarded.

Frequency of Observations

For practical reason, quarterly observations of data are used. In total, the BBSINDEX and SRINDEX consists of 3159 and 4293 observations respectively, for each of the valuation multiples. This is believed to be a sufficient sample size, and using monthly observations is therefore not assumed to increase the robustness significantly.

4.3. Method

4.3.1 Hypothesis Testing

In hypothesis testing, it is required to state a null hypothesis and an alternative hypothesis. The hypotheses are stated in such a way that if one is true, the other one must be false (Saunders et al., 2009). The means are tested against a two-sided Student's t-Test, which results in the following hypotheses for each of the three valuation multiples:

Hypothesis 1

 $H_0: \mu_{Benchmark} = \mu_{BBSINDEX}$ $H_A: \mu_{Benchmark} \neq \mu_{BBSINDEX}$

Hypothesis 2

 $H_0: \mu_{Benchmark} = \mu_{SRINDEX}$ $H_A: \mu_{Benchmark} \neq \mu_{SRINDEX}$

As these hypotheses constitute two-tailed tests, the null hypotheses are rejected if there is either a premium or a discount attached to the constructed indices. If the null hypotheses are rejected, the research fails to prove that the indices and benchmarks are equal, indicating that there is a difference.

4.3.2 Student's t-Test: Paired Two Sample for Means

The Student's t-Test is a hypothesis test designed to test differences in mean values between two independent populations where the standard deviation is not known (Fisher, 1925). If the probability of a false null hypothesis (p-value) is less than a certain value, the null hypothesis is rejected. Statistical significance is the probability that an effect is not due to just chance alone and was introduced by Fisher (1925). The most commonly used significance levels are 0.1, 0.05 or 0.01 and it is recommended that the significance, which is often called alpha (α), is set ahead of time, prior to any data collection (Fisher, 1925). This study works with α of 0.05, meaning that if a p-value is smaller than 0.05, then the result are considered statistically significant and the null hypothesis is rejected. The means of a large number of observations from the constructed indices are matched with the means of comparable benchmarks. In this study, the constituents in the SRINDEX and BBSINDEX and their respective benchmark indices are made comparable with respect to industry characteristics and geographical presence. The authors found matched pairs analysis to be the most suitable statistical technique to use for this study, as it highlights differences in separate indices in a purer way than other techniques considered, such as classical linear regression models.

5. Empirical Results

In this chapter, the empirical findings of the conducted research are presented. The results for each hypothesis are provided individually in two sections, after which a graphical time series analysis is shown. The last part of the chapter presents and discusses the validity of the findings.

5.1. Statistical Hypotheses Testing

In this section, the summarised findings for the hypotheses tests are presented. The complete outcome of these hypotheses tests can be found in Appendix 4.

5.1.1 Hypothesis 1

The first hypothesis tests whether there are any significant differences between the average valuation multiples of bad companies and the same multiples for the benchmark index, as depicted by the hypothesis formulations below. Table 5.1 shows a summary of the findings of the empirical research.

 $H_0: \mu_{Benchmark} = \mu_{BBSINDEX}$ $H_A: \mu_{Benchmark} \neq \mu_{BBSINDEX}$

α = 0.05	P/E	P/E	P/B Bad	P/B	EV/EBITDA	EV/EBITDA
	Bad	Benchmark		Benchmark	Bad	Benchmark
Mean ²	17.86	17.99	2.85	2.08	9.65	8.75
Implied	0.7%		37.0%		12.6%	
premium or						
discount						
t-stat	-0.402		13.937		3.795	
Probability	0.689		0.000		0.000	
Statistically	No		Yes		Yes	
significant at						
0.05 level?						
	Cannot	Reject Null	Reject Nu	Ill Hypothesis	Reject Null	Hypothesis
	Hypoth	esis because	because	p < 0.05	because p < 0.	.05 (Means are
	p > 0.05	5 (Means are	(Means a	re Different)	Different)	
	the sam	ne)				

Table 5-1 Findings Bad Companies

² Mean values are the actual values, whilst t-stat and probability derive from using the logged values

It can be depicted that the mean values for all three multiples are different between BBSINDEX and benchmark index. However, the P/E multiple's difference is statistically not significant and the null hypothesis can therefore not be rejected. For the P/B and EV/EBITDA multiple, however, outcomes are statistically significant at a 0.05 level and the null hypothesis can thus be rejected at a 5% significance level. Furthermore, from the actual mean values it can be seen that for both P/B and EV/EBITDA, the multiples for bad companies are greater than the benchmark. Only for the P/E ratio, the bad companies have a lower ratio.

5.1.2 Hypothesis 2

The second hypothesis tests whether there are any significant differences between the average valuation multiples of SR companies and the same multiples for the benchmark index as depicted by the hypothesis formulations below. Table 5.2 shows a summary of the findings of the empirical research.

 $H_0: \mu_{Benchmark} = \mu_{SRINDEX}$ $H_A: \mu_{Benchmark} \neq \mu_{SRINDEX}$

Table 5-2 Findings 8	SR Companies
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α = 0.05	P/E	P/E	P/B SR	B/B	EV/EBITDA	EV/EBITDA
	SR	Benchmark		Benchmark	SR	Benchmark
Mean ³	21.58	20.57	3.71	2.41	9.84	8.67
Implied	4.9%		54.0%		13.5%	
premium or						
discount						
t-stat	3.451		25.169		12.562	
Probability	0.001		0.000		0.000	
Statistically	Yes		Yes		Yes	
significant at						
0.05 level?						
	Reject	Null	Reject N	ull	Reject Null Hy	pothesis
	Hypoth	nesis because	Hypothe	sis because p	because p < 0.	05 (Means are
	p < 0.0	5 (Means are	< 0.05 (N	leans are	Different)	
	Differe	nt)	Different	t)		

³ Mean values are the actual values, whilst t-stat and probability derive from using the logged values

The table shows that the means for all ratios are different between the SRINDEX and the benchmark index. All outcomes are statistically significant at a 0.05 level and the null hypothesis can be rejected at a 5% significance level in all cases, meaning that the means indeed have a statistically significant difference. Furthermore, it can be seen that the differences between SRINDEX and benchmark index are positive and therefore in the form of premiums.

Comparing table 5.1 and 5.2 it can be depicted that the average across all ratios of companies on the BBSINDEX is considerably lower than for companies on the SRINDEX. The biggest difference can be observed with the P/E ratio (3.72), followed by the P/B (0.86) and the EV/EBITDA (0.19) ratios. Furthermore, it can be observed that the differences between index and benchmark are greater when comparing SR companies to their benchmark as opposed to comparing bad companies to their benchmarks.

5.2. Development over Time

This section shows how the individual multiples, compared to their respective benchmarks, have developed over time.



Figure 5-1 P/E, P/B and EV/EBITDA for BBSINDEX vs. Benchmark



It can be seen that for all ratios the differences have been initially larger than they currently are. Especially the P/E ratio has been fluctuating heavily for both, BBSINDEX and

benchmark. Considerable spikes for the BBSINDEX can be identified in 1995, 1998, 2001, 2004 and 2009. EV/EBITDA fluctuated a little less with spikes in 2001 and 2007, and the P/B fluctuated least, with one spike in 2007.



5.2.2 SR Companies Trend Analysis

Figure 5-2 P/E, P/B and EV/EBITDA for SRINDEX vs. Benchmark

From figure 5.2, it can be seen that, just like for the BBSINDEX, the P/E ratio was highly fluctuating with several spikes (2000, 2002, and 2009). It alternates frequently whether SR companies or their benchmarks have higher P/E ratios. EV/EBITDA and P/B ratio fluctuate considerably less and do not alternate. Considering the differences between SRINDEX and benchmark multiples, no development in any direction can be observed. This means that it cannot be stated that the difference increased or decreased over time. Thus, it is presumed that further statistical analysis of the trend would not bear any rewarding results.

5.3. Robustness Test

To test whether the data is normally distributed, the Anderson-Darling test is utilised. This test has been described as one of the most powerful tools to detect departures from normality (Stephens, 1974). Table 5.3 presents the results from the Anderson-Darling test. The test is performed on the logged values in order to investigate whether the log transformation yielded normally distributed samples.

	Ratio	A-	p-	95%	99%	Conclusion
		Squared	value	Critical	Critical	
				value	value	
	P/E	2.755	0.000	0.787	1.092	Non-Normal at 0.01
BBSINDEX	P/B	7.738	0.000	0.787	1.092	Non-Normal at 0.01
	EV/EBITDA	0.955	0.015	0.787	1.092	Non-Normal at 0.05, but normal at 0.01
	P/E	0.609	0.111	0.787	1.092	Data is Normal
SRINDEX	P/B	1.632	0.000	0.787	1.092	Non-Normal at 0.01
	EV/EBITDA	0.927	0.018	0.787	1.092	Non-Normal at 0.05, but normal at 0.01

Table 5-3 Robustness Test

The Anderson-Darling test is a statistical test under the null hypothesis of a normally distributed data, which is rejected if the p-value is lower than 0.05 or 0.01 at a 5% and 1% level, respectively. Table 5.3 shows that several of the null hypotheses are rejected, meaning that the datasets analysed in this study are not normally distributed. Consequently, a more thorough analysis of the distribution of the datasets is performed to ensure that the underlying assumptions presented in section 4.3.2 for using the Student's t-Test are met. This is done by constructing frequency histograms and probability plots, which can be found in Appendix 5. It is found that the samples have a reasonably symmetrical distribution, a mean that is close to the centre of the distribution and only one mode. Therefore, the samples are deemed suitable for the t-Test.

6. Analysis and Interpretation

This chapter entails a discussion of the empirical results presented in chapter five. The aim is to interpret this evidence in a sensible way, to see what it does and does not say and how it relates to previous research. This is done by comparing and contrasting these results to the theoretical framework and current literature presented in chapter two and three. Additionally, the implications of these results are discussed from investors' and managers' perspective, followed by suggestions for further research.

6.1. Discussion of Empirical Results

There are three possible outcomes when testing for differences in multiples for the SRINDEX and BBSINDEX and their benchmark. No difference, a positive difference and a negative difference. Each outcome, and therefore each stance regarding ethical investing, has its own advocates and research frontier. According to corporate finance theory discussed in chapter two, growth and ROIC, expressed through the discounted future cash flows should be the only determinant of a company's valuation. Given that EMH holds, investors trading based on their ethical perception of companies should be regarded as noise, and hence there should not be any observable difference between the SRINDEX and BBSINDEX ratios relative to their benchmark ratios. As differences are found, this section presents valuable insights in how investor's ethical perception affect valuation multiples through expectations on companies' future ability to generate free cash flows.

6.1.1 Premium for Bad Companies

If a difference is found, the results would contradict Fama's (1970) EMH, and indicate that noise trading caused by investors' ethical perception has a long term effect on valuation multiples. If a positive difference can be observed, it can be interpreted so that investors follow the logic of Milton Friedman (1970) who suggested that CSR is only a cost for companies. Consequently, SR companies have to bear additional costs, which would not only deteriorate ROIC and growth prospect, but also reduce investors demand for holding their stock and in turn affect their valuation multiples negatively. If the difference on the other hand is negative, meaning that bad companies trade at discount, it can be interpreted so that investors make investment decision based on factors other than merely risk and return. The decreased demand for a bad company's shares would directly influence its multiples negatively.

In table 5.1, the empirical results for all three ratios are summarised. It can be seen that all ratios have different means, however, only the P/B and EV/EBITDA mean differences are statistically significant. The fact that there are differences indicates that corporate finance theory (such as CAPM, FFM and valuation models), have limited applicability as they do not account for emotional factors. The results imply that, discounted future cash flows, and risk and return, are not the only determinants of a company's share price. The fact that the differences come in the form of premiums for bad companies is unexpected, and according to previous research, somewhat counterintuitive. It does suggest that financial investors are driven by greed and are willing to ignore bad CSR behaviour in favour of potentially higher returns. However, taking into account Lewellen's (2004) research, where he provides evidence that P/B and P/E ratios can predict future returns, overvalued companies should generate below-average returns. This is supported by MPT (Gruber et al., 2011) which points towards below-average returns for investors that have a restricted portfolio of only bad companies.

If investors are still willing to pay a premium for bad companies' shares, the authors believe that it is the result of an above-average estimation of the company's ability to generate free cash flows, indicating that such investor's consider CSR efforts merely a cost. This is in line with the shareholder theory and Milton Friedman.

Furthermore, the size of the premiums, at 37% for P/B and 12.6% for EV/EBITDA are noteworthy. The evidence indicates that investors are more optimistic about companies' ability to generate free cash flows if they have a record of accomplishment showing that they do not reduce cash flows by spending money on discretionary CSR efforts. The 37% premium found for the P/B ratio strongly contradicts Lobe and Walkshäusl (2011) who found that bad companies typically are value stocks, which would indicate lower P/B mulitples.

The results challenge previous research (Hong & Kacperczyk, 2009; Pae & Choi, 2010) that suggests that companies that do not have a strong commitment to business ethics face higher litigation risks, resulting in a higher WACC, causing them to trade at lower valuation multiples. Moreover, the findings contradict Ahrens (2004) who argues that the market attaches a discount to bad companies as they are political incorrect investments, and thus that the excess alpha return his investment strategy aim to capture partly come in the form of higher dividends.

In chapter two it was found that low P/B ratios, combined with a favourable ROE usually attract attention from value investors, as this can mean that the company is trading at a discount to its intrinsic value. The results of this study therefore indicate that the BBSINDEX, with an historical average P/B ratio of 2.85 provides a good investment case. To draw this conclusion, the average ROE however needs to be taken into account (Damodaran, 2012).

In regards to the P/E multiple, it can be seen that this ratio is the only one that is implying that the bad companies' shares are actually trading at a discount. This is interesting as it is the ratio most commonly used amongst investors. However, as the results are statistically insignificant, they are not analysed further in this study.

6.1.2 Premium for SR Companies

Just as for bad companies, there are three different possible outcomes for SR companies. Again, according to valuation theory, there should not be an observable difference unless investors think that CSR affects future cash flows. If there was a negative difference, it would mean that investors follow Friedman's (1970) and the shareholder theory's logic and see CSR merely as a cost. As the difference is positive, it indicates that investors consider CSR efforts as value creating.

The empirical results are summarised in table 5.2. As with SR companies, it can be seen that the means are different and that corporate finance theory is not taking emotion and feelings into account. The results indicate that in contrast to the theory presented in chapter two, risk and return and discounted future cash flows are not the only determinants of a company's valuation. The fact that all multiples indicate a premium for SR companies over their respective benchmark does not come as a surprise: the companies included in the SR index are mainly mature companies that have had a strong financial performance throughout the past decades (e.g. Microsoft). Such companies are included in the index, other explanatory factors (as discussed in the delimitation section) could have a significant impact on the multiples as well. However, the findings clearly depict that investors have to pay a premium for companies that have an outstanding reputation for their CSR conduct. With mean differences of 4.9% based on P/E, 54% based on P/B and 13.5% based on EV/EBITDA, this premium appears to be a rather substantial one, and outweighs the premium attached to the

BBSINDEX. Furthermore, the premium contradicts the EMH, and indicates that investors' ethical perception is not considered as noise and does affect valuation multiples.

The empirical evidence presented can also be interpreted in numerous other ways. It supports Pae and Choi (2010) who argue that value premium for SR companies stems from the lower cost of capital for stronger commitment to BE. Another plausible explanation is the one presented by Managi (2012), who argues that SR companies are closely followed by financial analysts and receive more news coverage, which in turn reduces information asymmetry. A reduction of information asymmetry would, according to Akerlof (1970), lead to a reduction of WACC and sequentially explain why SR companies are trading at a premium. Furthermore, the outcome supports Renneboog (2008) who argues that a good CSR reputation signals good management performance and increases investors' expectation about future financial performance. It also supports Orlitzky et al.'s (2003) meta-analysis results where they found that CSP is positively correlated with CFP.

According to CAPM, the premium found in this study indicates that investors perceive companies that have a good reputation for CSR to be less risky relative to their peers. This contradicts Menz (2010) whose main finding is that CSR has not yet been incorporated into the pricing of corporate bonds. This is interesting because corporate bonds give an indication on the overall risk premium attached to companies. It can be seen that the multiples of SR companies are greater than for the benchmark's average. The predictive qualities of both the P/E and P/B ratio suggest that those companies might be overvalued (Lewellen, 2004). This would lead to lower returns, which is supported by MPT (Gruber, et al., 2011) implying that restricting ones portfolio to SR companies has a negative impact on returns.

When comparing the relative size of the differences, it is found that the premiums attached to the BBSINDEX are smaller than for the SRINDEX. The exact numbers can be seen in table 5.1 and 5.2 respectively. This suggests that investors are willing to pay a higher premium for good companies than for bad ones. This is in line with the recent trend of increasing demand for SRI, where investors have other investment motives than merely financial return.

6.1.3 Effect of Change of Investors' Ethical Perception

Chapter two outlines that investors' demand for holding stock in SR companies has increased as SRI has increased in popularity over the past decades. It is therefore intuitive that SR companies are trading at a larger premium today than 20 years ago. Conversely, the opposite is anticipated for bad companies. A clear development in market pricing is therefore intuitive. Such results would indicate that investors' ethical perception does affect valuation multiples in the form of a premium for reputation for being SR and discount for being considered a bad company. The results presented in figure 5.1 and 5.2 are however not as strong as anticipated.

BBSINDEX

The empirical evidence presented in figure 5.1, showing the time series analysis performed on the companies in the BBSINDEX relative to their respective benchmarks, partly supports Ioannou and Serafeim's (2014) recent findings find that financial analysts' view on CSR has shifted from negative to positive from 1993 – 2007. The graphs illustrate that the BBSINDEX was trading at large premiums, based on the three multiples investigated, from 1994 – 1998. A plausible interpretation of this is that investors and financial analysts considered CSR efforts a cost, in accordance with Friedman's (1970) shareholder theory. The results indicate that in that period, the conventional wisdom was that CSR destroys value. It therefore caused the companies in BBSINDEX to trade at above average valuation multiples, as they are believed to spend a minimum amount of resources on such efforts.

In the period from 1998 - 2014, the graphs are more challenging to analyse. Ioannou and Serafeim's (2014) findings indicates that the BBSINDEX should trade at an increasingly large discount. If this was the case, it would also support Renneboog et al. (2010) who argue that increased demand for SRI causes present CSR efforts to be positively correlated to future financial performance. The findings presented graphically in chapter five do however not show a clear development in the form of increasing discounts for BBSINDEX in the period 1998 – 2014. The graphs rather show that, on average, the BBSINDEX has traded at a small premium, which the authors find counterintuitive.

Referring back to Fama (1970), the increased demand for SRI can be classified as irrational behaviour and can thus be regarded as noise that does not affect the market valuation, explaining why there is no clear development over time. The authors believe that the fact that the findings on average indicate a small premium cannot be justified by looking at fundamental corporate finance theory, but rather through behavioural finance and the psychology of investing. The main emotional motivators driving stock markets, namely fear and greed, might be able to explain why investors think that the intrinsic value of companies in the BBSINDEX is higher than those in the benchmark indices. One interpretation is that investors fear recessions, and believe that companies in the BBSINDEX are more likely to adapt quickly as they for instance would be willing to reduce the workforce. In addition, as

investors often are driven by greed, they might neglect questionable CSR practices if they improve financial performance.

SRINDEX

Figure 5.2 shows that the P/E ratio for SR companies follows the development of the benchmark average, and that there is no clear development over time. However, the development of P/B indicates that they traded at large premiums until 2010, and have been trading at a discount since. This is counterintuitive, but can be attributed to other factors. It is believed to be because most companies that score highly on CSR ratings today are mature companies with large book value of equity. Most of these mature companies have experienced rapid growth, resulting in very high past expectations amongst investors. Koller et al. (2010) argue that exceptional growth cannot be maintained indefinitely, hence investors' expectations have recently been adjusted downwards. This explains why they were traded at high P/B multiples in the past, which have normalised recently. Examples of such companies include, but are not limited to, Apple, Microsoft, Oracle and Toyota. It is for that reason believed that the difference over time in P/B alone cannot be attributed to investors' changing ethical perception. Figure 5.2 demonstrates that similar to the P/E ratio, the EV/EBITDA ratio shows that SR companies have mostly traded at a premium relative to the benchmark average, but that there is no strong development over time. Consequently, the empirical evidence presented graphically in chapter five fails to prove a correlation between the development of investors' increased demand for SR companies and valuation multiples.

6.2. Implications

In this section, the implications for investors as well as managers are discussed. It shows how the different practitioners can benefit from this research and its findings.

6.2.1 Implications for Investors

Investors should not solely base investment decisions on the three multiples tested, but they provide a good indication of whether a company's market value is close to its intrinsic value. The authors believe that at the end of the day, diversified portfolios have to be set up to mitigate risk and maximise return. This research has shown that, on average, the multiples for SR companies are greater than their benchmark's multiples. However, the same is true for bad companies. This indicates that investors have to pay a premium for either of these shares, which, under the premise of no abnormal returns on SR and/or bad companies stocks (Kreander et al., 2005; Mallin et al., 1995) consequently lowers their ROI. The findings

indicate that investors that only invest in companies with a particularly good or bad reputation for CSR will have to pay a premium over the intrinsic value. When such portfolio restrictions are done consciously, which is the case for NBIM, it is believed that investors accept this and are willing to pay a premium and accept a lower return. This view is in line with Trudel and Cotte (2009) who found that customers are willing to pay a premium for ethically produced goods.

6.2.2 Implications for Managers

The empirical evidence presented in chapter five indicates that companies that stand out in regards to reputation for CSR are more valuable than those who are average. These results do indeed offer some interesting implications for managers. They indicate that analogous to Lam et al.'s (2012) findings, managers might need to improve CSR to improve market valuation. This is supported by Pae and Choi (2010) who argue that managers can increase firm value by committing to higher standards of BE. The empirical material also show that companies that have an exceptionally bad reputation for CSR, are more valuable than their peers are. This leads to an even more interesting, yet slightly controversial, implication: managers have incentives to completely neglect discretionary CSR efforts to maximise shareholder value. This report starts with a quote from Friedman: "The social responsibility of business is to increase its profits" which reflects the perception many managers have on their responsibility. As most managers consider maximising shareholder value as their number one responsibility, this study justifies and partly explains why some firms show low commitment to business ethics, neglect discretionary CSR efforts and breach societal norms. Based on the outcome of this study, doing so appears to be a better solution than to be perceived as an average company. That being said, the premium is larger for the SRINDEX than for the BBSINDEX, indicating that a strong focus on CSR is a better and less controversial path to take. It is believed that such CSR efforts have to be combined with the necessary public relations efforts to effectively affect investors' ethical perception. The reason for this is that it is investors' ethical perception that lowers WACC through the cost of equity, and in turn maximise firm value.

6.3. Further Research

Taking the findings and limitations of this study, as well as previous research, into consideration, additional research can be carried out to gain more insight in how the ethical

perception of investors affects valuation multiples. Most notably, the authors would like to recommend four further topics:

- To what extent is it possible to achieve abnormal returns through shorting CSR stocks as SRI is popular amongst investors?
- Event study on the signalling effect from being included on NBIM's exclusion list and whether this effect is rebalanced if the decision is revoked.
- Qualitative study on how investors look upon CSR efforts, is it considered value destroying or value creating?
- Quantitative study on how expenditure on discretionary CSR efforts affect stock returns?

By improving the method used for this study, the strength of the results can be enhanced, in turn improving the statistical inference. One recommended improvement is to readjust the portfolios every year, as it is questionable whether the constituents in the indices have had a stable reputation for being good or bad in regards to CSR throughout the study period. Furthermore, the study can be replicated using different definitions of either or both of SR and bad companies, leading to a different sample selection process.

7. Conclusion

This study was set out to investigate whether and how either an outstanding or bad CSR reputation impacts companies' P/E, P/B and EV/EBITDA ratios. In contrast to previous research, this study focused rather on market valuation in terms of the mentioned multiples than on risk-adjusted returns. The theoretical foundation of this subject, specifically in the context of market valuation of ethics, is inconclusive, which is why the main research question was: how are valuation multiples affected by investors' ethical perception? The objective of this research has been to investigate whether premiums and/or discounts are attached to companies due to their reputation for CSR and whether these results are intuitive based on corporate finance theory.

Two indices were constructed, one with SR companies (SRINDEX) and one with bad companies (BBSINDEX). Over a period of 20 years (Q1 1994 – Q1 2014), these indices were compared to their respective benchmarks. Using this longitudinal study approach, the researchers were able to identify differences in the multiples and to investigate the historical development.

The empirical findings showed that being socially responsible does in fact increase valuation multiples, indicating that investors are willing to pay a premium for SR companies' shares. Taking the predictive characteristics of P/B and P/E ratio into account, this suggests that investors might end up with below-average returns when solely investing in SR companies. Considering that investors might hold alternative motives for SRI besides solely returns, this is unsurprising. Unexpectedly, the research yielded similar results for bad companies: two out of three multiples (P/B and EV/EBITDA) indicated a premium for companies included on the BBSINDEX over their respective benchmark. This outcome indicates that investors are also willing to pay a premium for bad companies' shares, indicating that they are optimistic in terms of their future ability to generate free cash flows. Besides, the premium can be explained by behavioural finance theory, and indicates that investors are driven by greed, neglecting questionable behaviour in their quest for excess alpha. Nevertheless, using the P/B ratio to predict returns indicates that investors that only invest in bad companies might end up with below-average returns. Additionally, it was shown that the study has interesting implications for managers, as it indicates that to maximise shareholder value, managers should either show strong commitment to, or completely neglect, discretionary CSR efforts.

Consequently, this thesis justified and partly explained why some firms show low commitment to business ethics, neglect discretionary CSR efforts and breach societal norms.

The study successfully managed to answer the main research question by showing that investors' ethical perception does have a statistically significant impact on valuation multiples, indicating that well known corporate finance theories have limited applicability. For that reason, the authors believe that in order to understand market pricing of companies, emotions and feelings covered in behavioural finance should complement well-established valuation theory.

During the 20-year period, there was no significant development in either direction. Both, the SRINDEX and BBSINDEX, followed their respective benchmark indices over time. This research therefore failed to prove a correlation between the development of investors' increased demand for SR companies and valuation multiples. The research further showed that the relative differences between constructed indices and the benchmark indices were greater for SR companies than for bad companies. The authors believe that this is good news for the world at large as it implies that to maximise shareholder value, managers should adhere to ethics of reciprocity, commonly known as the golden rule. Furthermore, it is believed that Ford Motor Company's Executive Chairman, William Clay Ford Jr., had a point when he stated that "creating a strong business and building a better world are not conflicting goals – they are both essential ingredients for long-term success".

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9. Appendices

9.1. Appendix 1: Guidelines for the observation and exclusion of companies from the Government Pension Fund Global's investment universe

Source: http://www.regjeringen.no/en/sub/styrer-rad-utvalg/ethics_council/ethical-guidelines.html?id=425277

This translation is for information purposes only. Legal authenticity remains with the original Norwegian version.

Adopted by the Ministry of Finance on 1 March 2010 pursuant to Act no. 123 of 21 December 2005 relating to the Government Pension Fund, section 7

Section 1. Scope

(1) These guidelines apply to the work of the Ministry of Finance, the Council on Ethics and Norges Bank concerning the exclusion and observation of companies.

(2) The guidelines cover investments in the Fund's equity and fixed income portfolio, as well as instruments in the Fund's real-estate portfolio issued by companies that are listed in a regulated market.

Section 2. Exclusion of companies from the Fund's investment universe

(1) The assets in the Fund shall not be invested in companies which themselves or through entities they control:

a) produce weapons that violate fundamental humanitarian principles through their normal use;

b) produce tobacco;

c) sell weapons or military material to states that are affected by investment

restrictions on government bonds as described in the management mandate

for the Government Pension Fund Global Section 3-1 C).

(2) The Ministry makes decisions on the exclusion of companies from the investment universe of the Fund as mentioned in paragraph 1 on the advice of the Council on Ethics.

(3) The Ministry of Finance may, on the advice of the Council of Ethics, exclude companies from the investment universe of the Fund if there is an unacceptable risk that the company contributes to or is responsible for:

a) serious or systematic human rights violations, such as murder, torture,

deprivation of liberty, forced labour, the worst forms of child labour and other child exploitation;

b) serious violations of the rights of individuals in situations of war or conflict;

c) severe environmental damage;

d) gross corruption;

e) other particularly serious violations of fundamental ethical norms.

(4) In assessing whether a company shall be excluded in accordance with paragraph 3, the Ministry may among other things consider the probability of future norm violations; the severity and extent of the violations; the connection between the norm violations and the company in which the Fund is invested; whether the company is doing what can reasonably be expected to reduce the risk of future norm

violations within a reasonable time frame; the company's guidelines for, and work on, safeguarding good corporate governance, the environment and social conditions; and whether the company is making a positive contribution for those affected, presently or in the past, by the company's behaviour. (5) The Ministry shall ensure that sufficient information about the case has been obtained before making any decision on exclusion. Before deciding on exclusion in accordance with paragraph 3, the Ministry shall consider whether other measures may be more suitable for reducing the risk of continued norm violations or may be more appropriate for other reasons. The Ministry may ask for an assessment by Norges Bank on the case, including whether active ownership might reduce the risk of future norm violations.

Section 3. Observation of companies

(1) The Ministry may, on the basis of advice from the Council on Ethics in accordance with section 4, paragraphs 4 or 5, decide to put a company under observation. Observation may be chosen if there is doubt as to whether the conditions for exclusion have been fulfilled, uncertainty about how the situation will develop, or if it is deemed appropriate for other reasons. Regular assessments shall be made as to whether the company should remain under observation.

(2) The decision to put a company under observation shall be made public, unless special circumstances warrant that the decision be known only to Norges Bank and the Council on Ethics.

Section 4. The Council on Ethics for the Government Pension Fund Global – appointment and mandate (1) The Ministry of Finance appoints the Council on Ethics for the Government Pension Fund Global. The Council shall consist of five members. The Council shall have its own secretariat.

(2) The Council shall monitor the Fund's portfolio with the aim of identifying companies that are contributing to or responsible for unethical behaviour or production as mentioned in section 2, paragraphs 1 and 3.

(3) At the request of the Ministry of Finance, the Council gives advice on the extent to which an investment may be in violation of Norway's obligations under international law.

(4) The Council gives advice on exclusion in accordance with the criteria stipulated in section 2, paragraphs 1 and 3.

(5) The Council may give advice on whether a company should be put under observation, cf. section 3.

Section 5. The work of the Council on Ethics

(1) The Council deliberates matters in accordance with section 4, paragraphs 4 and 5 on its own initiative or at the behest of the Ministry of Finance. The Council on Ethics shall develop principles that form the basis for the Council's selection of companies for closer investigation. The principles shall be made public.

(2) The Council shall obtain the information it deems necessary and ensure that the case has been properly investigated before giving advice on exclusion from the investment universe.

(3) A company that is being considered for exclusion shall be given the opportunity to present information and viewpoints to the Council on Ethics at an early stage of the process. In this context, the Council shall clarify to the company which circumstances may form the basis for exclusion. If the Council decides to recommend exclusion, its draft recommendation shall be presented to the company for comment.

(4) The Council shall describe the grounds for its recommendations. These grounds shall include a

presentation of the case, the Council's assessment of the specific basis for exclusion and any comments on the case from the company. The description of the actual circumstances of the case shall, insofar as possible, be based on material that can be verified, and the sources shall be stated in the recommendation unless special circumstances indicate otherwise. The assessment of the specific basis for exclusion shall state relevant factual and legal sources and the aspects that the Council believes ought to be accorded weight. In cases concerning exclusion pursuant to section 2, paragraph 3, the recommendation shall, as far as is appropriate, also give an assessment of the circumstances mentioned in section 2, paragraph 4.

(5) The Council shall routinely assess whether the basis for exclusion still exists and may, in light of new information, recommend that the Ministry of Finance reverse a ruling on exclusion.

(6) The Council's routines for processing cases concerning the possible reversal of previous rulings on exclusion shall be publicly available. Companies that have been excluded shall be specifically informed of the routines.

(7) The Ministry of Finance publishes the recommendations of the Council on Ethics after the securities have been sold, or after the Ministry has made a final decision not to follow the Council on Ethics' recommendation.

(8) The Council shall submit an annual report on its activities to the Ministry of Finance.

Section 6. Exchange of information and coordination between Norges Bank and the Council on Ethics (1) The Ministry of Finance, the Council on Ethics and Norges Bank shall meet regularly to exchange information about work linked to active ownership and the Council on Ethics' monitoring of the portfolio. (2) The Council on Ethics and Norges Bank shall have routines to ensure coordination if they both contact the same company.

(3) The Council on Ethics may ask Norges Bank for information about how specific companies are dealt with through active ownership. The Council on Ethics may ask Norges Bank to comment on other circumstances concerning these companies. Norges Bank may ask the Council on Ethics to make its assessments of individual companies available.

Section 7. Notification of exclusion

 (1) The Ministry of Finance shall notify Norges Bank that a company has been excluded from the investment universe. Norges Bank shall be given a deadline of two calendar months to complete the sale of all securities. Norges Bank shall notify the Ministry as soon as the sale has been completed.
 (2) At the Ministry's request, Norges Bank shall notify the company concerned of the Ministry's decision to exclude the company and the grounds for this decision.

Section 8. List of excluded companies

The Ministry shall publish a list of companies that have been excluded from the investment universe of the Fund or put under observation.

Section 9. Entry into force

These guidelines come into force on 1 March 2010. The Ethical Guidelines for the Government Pension Fund Global, adopted by the Ministry of Finance on 19 November 2004, are repealed on the same date.

9.2. Appendix 2: Overview of Companies in the BBSINDEX

Bad Brake & Sakkestad Index (BBSINDEX)		
Company	Industry 🗐	Benchmark index -
- Zuari Agro Chemicals Ltd. (14 October 2013)	Chemicals	INDIA-DS Chemicals
- Elbit Systems	Defense / Weapons	G12-Datastream Defense
- Singapore Technologies Engineering	Defense / Weapons	G12-Datastream Defense
- Textron Inc.	Defense / Weapons	G12-Datastream Defense
- Hanwha Corporation	Defense / Weapons	G12-Datastream Defense
- Poongsan Corporation	Defense / Weapons	G12-Datastream Defense
- Raytheon Co.	Defense / Weapons	G12-Datastream Defense
- General Dynamics corporation	Defense / Weapons	G12-Datastream Defense
- Alliant Techsystems Inc	Defense / Weapons	G12-Datastream Defense
- Lockheed Martin Corp	Defense / Weapons	G12-Datastream Defense
- The Babcock & Wilcox Co	Defense / Weapons	G12-Datastream Defense
- Jacobs Engineering Group Inc. (11 January 2013)	Defense / Weapons	G12-Datastream Defense
- Serco Group Plc. (31 December 2007)	Defense / Weapons	G12-Datastream Defense
- Gen Corp. Inc. (31 December 2007)	Defense / Weapons	G12-Datastream Defense
- Safran SA (31 December 2005)	Defense / Weapons	G12-Datastream Defense
Northron Grumman Corn. (31 December 2005)	Defense / Weapons	G12-Datastream Defense
- Honovwell International Corp. (31 December 2005)	Defense / Weapons	G12-Datastream Defense
- FADS Finance BV (we only use Airbus Group as they have a new name)	Defense / Weapons	G12-Datastream Defense
- EADS Finance BV (we only use Airbus Gloup as they have a new hame)	Defense / Weapons	G12-Datastream Delense
- EADO CO (WE ONLY USE ANDUS GROUP, INSTEAD OF DOTA)	Defense / Weapons	C12 Detectroom Defer
- Boeing Co. (31 December 2005)	Defense / Weapons	G12-Datastream Defense
- Dongteng Motor Group Co Ltd.	Defense / Weapons	G12-Datastream Detense
- Potash Corporation of Saskatchewan (6 December 2011)	Fertilisers	CANADA-DS Chemicals
- WTK Holdings Berhad (14 October 2013)	Forestry	WORLD-DS Forestry
- Ta Ann Holdings Berhad (14 October 2013)	Forestry	WORLD-DS Forestry
- Lingui Development Berhad Ltd. (16 February 2011)	Forestry	WORLD-DS Forestry
- Samling Global Ltd. (23 August 2010)	Forestry	WORLD-DS Forestry
- Africa Israel Investments (30 January 2014)	Israeli Real Estate Companies	ISRAEL-DS Real Estate
- Danya Cebus (30 January 2014)	Israeli Real Estate Companies	ISRAEL-DS Real Estate
- Shikun & Binui Ltd. (31 May 2012)	Israeli Real Estate Companies	ISRAEL-DS Real Estate
- Sesa Sterlite (30 January 2014)	Mining	WORLD-DS Mining
- Zijin Mining Group (14 October 2013)	Mining	WORLD-DS Mining
- Volcan Compaña Minera (14 October 2013)	Mining	WORLD-DS Mining
- Norilsk Nickel (31 October 2009)	Mining	WORLD-DS Mining
- Barrick Gold Corp (30 November 2008)	Mining	WORLD-DS Mining
- Rio Tinto Plc. (30 June 2008)	Mining	WORLD-DS Mining
- Rio Tinto Ltd. (30 June 2008)	Mining	
- Madras Aluminium Company (31 October 2007)	Mining	WORLD-DS Mining
- Sterlite Industries Ltd. (31 October 2007)	Mining	WORLD-DS Mining
- Vedanta Resources Plc. (31 October 2007)	Mining	WORLD-DS Mining
- Freeport McMoRan Copper & Gold Inc. (31 May 2006)	Mining	WORLD-DS Mining
- Wal-Mart Stores Inc. (31 May 2006)	Retail	WORLD-DS Retail
Wal-Mart de Mexico SA do CV (31 May 2006)	Potail	
- Schweitzer-Mauduit International Inc. (8 May 2000)	Tobacco	
- Hushaa International Holdings Limited/9 May 2013)	Tobacco	
	Tabaaco	WORLD-DS Tobacco
- Grupo Garso SAD de GV (24 August 2011)	Tobacco	WORLD-DS TODACCO
- Snangnai industrial Holdings Ltd. (15 March 2011)	TODACCO	WORLD-DS Tobacco
- Alliance One International Inc. (31 December 2009)		WORLD-DS Tobacco
- Altria Group Inc. (31 December 2009)	Tobacco	WORLD-DS Tobacco
- British American Tobacco BHD (31 December 2009)	10bacco	
- British American Tobacco Plc. (only use mother company here)	Tobacco	WORLD-DS Tobacco
- Gudang Garam tbk pt. (31 December 2009)	Tobacco	WORLD-DS Tobacco
- Imperial Tobacco Group Plc. (31 December 2009)	Tobacco	WORLD-DS Tobacco
- ITC Ltd. (31 December 2009)	Tobacco	WORLD-DS Tobacco
- Japan Tobacco Inc. (31 December 2009)	Tobacco	WORLD-DS Tobacco
- KT&G Corp (31 December 2009)	Tobacco	WORLD-DS Tobacco
- Lorillard Inc. (31 December 2009)	Tobacco	WORLD-DS Tobacco
- Philip Morris International Inc. (31 December 2009)	Tobacco	WORLD-DS Tobacco
- Philip Morris Cr AS. (31 December 2009)	Tobacco	
- Reynolds American Inc. (31 December 2009)	Tobacco	WORLD-DS Tobacco
- Souza Cruz SA (31 December 2009)	Tobacco	WORLD-DS Tobacco
- Swedish Match AB (31 December 2009)	Tobacco	WORLD-DS Tobacco
- Universal Corp VA (31 December 2009)	Tobacco	WORLD-DS Tobacco
- Vector Group Ltd. (31 December 2009)	Tobacco	WORLD-DS Tobacco
	TODALLU	WORLD-DO TUDACCU

Source: Norges Bank of Investment Management (NBIM) on behalf of Norwegian Ministry of Finance
http://www.regieringen.no/en/dep/fin/Selected-topics/the-government-pension-fund/responsible-investments/companies
Number of companies included: 58
Number of industries: 8

9.3. Appendix 3: Overview of Companies in the SRINDEX

Socially Respons	ible Index (SRINDEX)			
2013 CSR Rank -	Company	2013 CSR RepTrak	Industry	Benchmark index
34	Deutsche Lufthansa	65.93	Airline	Europe-Datastream Airlines
41	SAS (Scandinavian Airlines)	65.60	Airline	Europe-Datastream Airlines
51	Singapore Airlines	65.20	Airline	
4	BMM/	72.14	Automobile	World-Datastream Automobiles
5	Deimler (Mercedes Denn)	70.05	Automobile	World Datastream Automobiles
0	Daimer (Mercedes-Benz)	70.00	Automobile	World-Datastream Automobiles
8	Volkswagen	69.29	Automobile	world-Datastream Automobiles
20	Honda Motor	67.03	Automobile	World-Datastream Automobiles
21	Toyota	66.96	Automobile	World-Datastream Automobiles
32	Volvo Group	66.13	Automobile	World-Datastream Automobiles
2	The Walt Disney Company	72.83	Broadcasting & Entertainment	World-Datastream Broadcasting and Entertainment
22	Adidas Group	66.90	Clothing and accessories	World-Datastream Clothing and Accessories
24	Cioraio Armani Croun	66.14	Clothing and accessories	
12	Bolox	60.14 60.4E	Clothing and accessories	
12		00.40	clothing and accessories	World Datastra an Madat
45	General Electric	65.42	Congiomerate	Wond-Datastream Market
35	Electrolux	65.91	Consumer electronics	World-Datastream Electronic and Electrical Equipment
44	Whirlpool	65.43	Consumer electronics	World-Datastream Electronic and Electrical Equipment
58	LVMH Group	64.69	Consumer products	World-Datastream Consumer Goods
16	Colgate-Palmolive	67.62	Consumer products	World-Datastream Consumer Goods
24	L'Oréal	66.66	Consumer products	World-Datastream Consumer Goods
29	Procter & Gamble	66 16	Consumer products	World-Datastream Consumer Goods
46	FodEx	65.33	Delivery Services	World-Datastream Delivery Services
40	Neetlé	00.00	Food & Deverages	World Detectroom Ecod and Revorages
10	Neste	69.00	Food & Beverages	Wond-Datastream Food and Beverages
14	Kellogg Company	67.90	Food & Beverages	World-Datastream Food and Beverages
17	Danone	67.25	Food & Beverages	World-Datastream Food and Beverages
27	The Coca-Cola Company	66.43	Food & Beverages	World-Datastream Food and Beverages
30	Ferrero	66.15	Food & Beverages	
47	Barilla	65.30	Food & Beverages	
49	Kraft Foods	65.26	Food & Beverages	World-Datastream Food and Beverages
54	Hilleinz	64.95	Food & Beverages	World-Datastream Food and Beverages
54		C4.0C	Food & Deverages	World Detectroom Food and Beverages
00	Heineken	04.00	Food & Beverages	Wond-Datastream Food and Beverages
3/	IKEA	65.84	rumiture	
40	Marriott International	65.60	Hotel	World-Datastream Hotels
36	Siemens	65.86	Industrial	World-Datastream Industrials
43	3M	65.54	Office Supplies	World-Datastream Market
15	Johnson & Johnson	67.80	Pharmaceutical	World-Datastream Pharmaceuticals
39	Eli Lilly	65.64	Pharmaceutical	World-Datastream Pharmaceuticals
48	Abbott Laboratories	65.28	Pharmaceutical	World-Datastream Pharmaceuticals
60	Baver	64 59	Pharmaceutical	World-Datastream Pharmaceuticals
1	Marcaoft	72.07	Technology	World-Datastream Technology
1	Microsoft	72.97	Technology	World Detectroom Technology
3	Google	72.71	Technology	wond-Datastream rechnology
6	Sony	69.49	Technology	World-Datastream Technology
7	Intel	69.32	Technology	World-Datastream Technology
9	Apple	69.21	Technology	World-Datastream Technology
13	Canon	68.02	Technology	World-Datastream Technology
18	IBM	67.09	Technology	World-Datastream Technology
19	Philips Electronics	67.03	Technology	World-Datastream Technology
25	Hewlett-Packard	66.51	Technology	World-Datastream Technology
26	Samsung Electronics	66.50	Technology	World-Datastream Technology
20		66.00	Technology	World Datastream Technology
20		00.20	Technology	World Detectroom Technology
38	Oracle	65.72	Technology	world-Datastream Technology
50	Dell	65.25	Technology	
52	Cisco Systems	65.20	Technology	World-Datastream Technology
55	Nintendo	64.91	Technology	World-Datastream Technology
57	LG Corporation	64.74	Technology	World-Datastream Technology
59	Nokia	64.65	Technology	World Detectroom Technology
22	Michelín	66 75	Tiros	World-Datastream Tires
23	Nichein	00./5	illes	wond-Datastream mes
33	Bridgestone	65.98	Tires	World-Datastream Tires
42	Goodyear	65.55	Tires	World-Datastream Tires
53	Pirelli	65.18	Tires	World-Datastream Tires
11	LEGO Group	68.77	Toys	
Source: Reputation Available at: http://w	Institute www.reputationinstitute.com/thought-leadership/csr-	reptrak-100		
Number of companie	s included: 53			
Number of industries	: 14			

9.4. Appendix 4: Result of Student's t-Tests

P/E Bad vs. Benchmark logged t-Test

t-Test: Paired Two			
Sample for Means	α	= 0.05	
	P/E Bad log	P/E Benchmark log	_
Mean	2.864365882	2.872197655	
Variance	0.038244309	0.036861549	
Observations	81	81	
Pearson Correlation	0.590773997		
Hypothesized Mean			
Difference	0		
df	80		
t Stat	-0.402		
			Cannot Reject Null Hypothesis
			because p > 0.05 (Means are the
P(T<=t) one-tail	0.344		same)
T Critical one-tail	1.664		
			Cannot Reject Null Hypothesis
			because p > 0.05 (Means are the
P(T<=t) two-tail	0.689		same)
T Critical Two-tail	1.990		

P/B Bad vs. Benchmark logged t-Test

t-Test: Paired Two Sample			
for Means	α	= 0.05	
	P/B Bad	P/B Benchmark	
	log	log	_
Mean	1.020214	0.724183	
Variance	0.05678	0.013521	
Observations	81	81	
Pearson Correlation	0.609153		
Hypothesized Mean			
Difference	0		
df	80		
t Stat	13.937		
			Reject Null Hypothesis because p < 0.05
P(T<=t) one-tail	0.000		(Means are Different)
T Critical one-tail	1.664		
			Reject Null Hypothesis because p < 0.05
P(T<=t) two-tail	0.000		(Means are Different)
T Critical Two-tail	1.990		_

t-Test: Paired Two			
Sample for Means	α	= 0.05	
	EV/EBITDA	EV/EBITDA	
	Bad log	Benchmark log	
Mean	2.251320713	2.161019	
Variance	0.03007676	0.016769	
Observations	81	81	
Pearson Correlation	0.02165209		
Hypothesized Mean			
Difference	0		
df	80		
t Stat	3.795		
			Reject Null Hypothesis because p < 0.05
P(T<=t) one-tail	0.000		(Means are Different)
T Critical one-tail	1.664		
			Reject Null Hypothesis because p < 0.05
P(T<=t) two-tail	0.000		(Means are Different)
T Critical Two-tail	1.990		

EV/EBITDA Bad vs. Benchmark logged t-Test

P/E SR vs. Benchmark logged t-Test

t-Test: Paired Two Sample			
for Means	α	= 0.05	
	P/E SR log	P/E Benchmark log	-
Mean	3.053687	2.988099	
Variance	0.036949	0.088408	
Observations	81	81	
Pearson Correlation	0.840673		
Hypothesized Mean			
Difference	0		
df	80		
t Stat	3.451		
			Reject Null Hypothesis because p < 0.05
P(T<=t) one-tail	0.000		(Means are Different)
T Critical one-tail	1.664		
			Reject Null Hypothesis because p < 0.05
P(T<=t) two-tail	0.001		(Means are Different)
T Critical Two-tail	1.990		_

for Means	α	= 0.05	
	P/B SR log	P/B Benchmark log	-
Mean	1.262044	0.846399	-
Variance	0.095356	0.063354	
Observations	81	81	
Pearson Correlation	0.878861		
Hypothesized Mean			
Difference	0		
df	80		
t Stat	25.169		
			Reject Null Hypothesis because p < 0.05
P(T<=t) one-tail	0.000		(Means are Different)
T Critical one-tail	1.664		
			Reject Null Hypothesis because p < 0.05
P(T<=t) two-tail	0.000		(Means are Different)
T Critical Two-tail	1.990		_

P/B SR vs. Benchmark logged t-Test

t-Test: Paired Two Sample

EV/EBITDA SR vs. Benchmark logged t-Test

t-Test: Paired Two Sample			
for Means	α	= 0.05	
			-
	EV/EBITDA	EV/EBITDA	
	SR log	Benchmark log	
Mean	2.272520726	2.139762	
Variance	0.028675485	0.037934	
Observations	81	81	
Pearson Correlation	0.872650487		
Hypothesized Mean			
Difference	0		
df	80		
t Stat	12.562		
			Reject Null Hypothesis because p < 0.05
P(T<=t) one-tail	0.000		(Means are Different)
T Critical one-tail	1.664		
			Reject Null Hypothesis because p < 0.05
P(T<=t) two-tail	0.000		(Means are Different)
T Critical Two-tail	1.990		_

-2 -3 -3 1.80

2.00

2.20

2.40

2.60

2.80

3.00

9.5. Appendix 5: Frequency Histograms and Probability Plots

Frequency Histograms





65 | Page


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