Ethical investment and returns: evidence and comparison study of the USA, Germany and China

Ethical Investment and Returns: evidence and comparison study of the USA, Germany and China

by

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Declaration

I declare that this thesis, which I have presented for consideration for my PhD degree, is entirely my own work except where otherwise indicated and embodies the results of my own course of study and research.

It has not been submitted, either partially or in full, for another qualification at this University or at any other institution.

I have clearly indicated the presence of all material I have quoted from other sources, including any diagrams, charts, tables, or graphs. I have clearly indicated the presence of all paraphrased material with appropriate references.

I have not used the services of any agency providing a specimen, model or ghost-written work in the preparation of this thesis.

London, June 2022

Location and Date

A. Hzenga

Signature

Ethical Investment and Returns: evidence and comparison study of the USA, Germany and China

Abstract

With 10% of worldwide funds being Ethical funds and Ethical Investing accounting for almost one-third of all professionally managed U.S. assets, Ethical Investment is one of the fastest-growing investment strategies. However, existing literature on its effects on investment returns is far from conclusive, partly because different definitions of ethical investment, different screening methods, varying assessments of ethical behaviour, varying time frames, differing return metrics, and studied single country were employed. Furthermore, the neglection of the effects of industry and partial neglection of roles of company size might contribute to the contradicting results reported in the literature.
To address some of the problems, this research aims to start by building a comprehensive ethical score dataset for the USA, Germany and China, which enables comparison studies of these countries on the same footing. Industries and size effects on a firm's ethical behaviour with respect to the Slack Resource Theory and the Small Company Bias are tested.
This research employs multiple multivariate OLS-regressions, Score analysis, Sensitivity analyses, Kruskal-Wallis test and carries out a comparison study on the USA, Germany and China.

The findings show that over time there is generally an increase in ethical behaviour measured by the Ethical Scoring System. However, ethical behaviour also varies among countries. The Sensitivity Analysis, the OLS-regressions as well as the Kruskal-Wallis Test confirm significant differences between the countries and its implications on the impact of ethical behaviour on the financial performance. While the Sensitivity Analysis finds that in the USA, an increase in Ethical Score results in a decrease in return, Germany shows the opposite. China shows mixed results depending on the return metric.
When looking at the results of the OLS-regressions, the results are mixed but show that the Ethical Score has largely no impact. Combining the Sensitivity Analysis results and the regression results, it appears that the Ethical Score is not insignificant itself as it has impact, as shown in the Sensitivity Analysis. However, when other variables are introduced, it

appears that these other factors explain the company's return better, making the Ethical Score less significant.

Additionally, this study finds a varying impact on the return across industries confirming the neglected importance of this factor. The Consumer Staples and Energy industry show no impact of ethical behaviour on the return, while the Consumer Discretionary, Finance and Industrials Industry indicate that ethical behaviour is penalised while unethical behaviour is financially rewarded. The HealthCare, Information Technology, Telecommunication, and Utility industry mainly show that ethical behaviour is financially rewarded while unethical behaviour is penalised. However, these results are not valid in each of the three countries. They depend on the country and the return metric.

Further, this thesis tests the roles of company size on their Ethical Behaviour. Two conflicting theories in literature are tested: The Slack Resource Theory and the Small Company Bias. This thesis uses four cross-sectional OLS-regressions and employs multiple size measurements, namely revenue, market capitalization, number of employees, and total assets. This thesis cannot establish conclusive evidence to confirm or reject either of these two theories as the results are equivocal and differ amongst size measurements and countries.

This thesis contributes theoretically by developing an own definition of Ethical Investment, methodologically by developing a comprehensive Ethical Scoring System and applying multiple forms of analysis with multiple size and return metrics, and empirically by integrating country, industry and size as impact factors.

The findings of this thesis contribute to the further understanding of the impact of ethical behaviour on financial performance based on a comprehensive self-created ethics scores dataset, comparing three major economies in the world and applying different ways of return measures. The findings provide rich implications to the investment industry when they attempt to construct a global Ethical investment portfolio and help retail investors to form better investment decisions.

Dedication

To my parents.

I am eternally grateful for your unconditional love, endless support, and continuous encouragement. You are my heroes, my inspiration and my guidance.
You are my world.

Acknowledgement

I am utmost grateful to my supervisor Prof. Dr Chin-Bun Tse for his continuous support and advice during my course of study. His attention to detail paired with extensive, perspicacious knowledge and methodological input were invaluable and extremely helpful. My thesis would not have been of the same quality if not for his support and guidance.

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List of Abbreviations

aAR	Average Abnormal Return
AR	Abnormal Return
BHAR	Buy-and-Hold Abnormal Return
BSE	Bucharest Stock Exchange
CAR	Cumulative Abnormal Return
CD	Consumer Discretionary
CHI	China
COM	combined
CS	Consumer Staples
CSR	Corporate Social Responsibility
DtE	Debt-to-Equity
EFP	Environmentally friendly portfolio
EIB	European Investment Bank
EIRIS	Ethical Investment Research and Information Services
EN	Energy
EI	Ethical Investment
ES	Ethical Score
ESG	Environmental, Social, and Governance

ESS	Ethical Scoring System
EUROSIF	European Sustainable Investment Forum
FI	Financial industry
GBP	Green Bond Principles
GDP	Gross Domestic Product
GER	Germany
HC	Health Care
HKEX	Hong Kong Stock Exchange
IN	Industrials
IT	Information Technology
NS	Negative Score
NSc	Negative Screening
NYSE	New York Stock Exchange
OAT	One-at-a-time variation approach
PM	Profit Margin
PRI	Principles for Responsible Investment Initiative
PS	Positive Score
PSc	Positive Screening
Rev	Revenue
SA	Sensitivity Analysis
SCB	Small Company Bias
SDI	Socially directed investment
SEE	Social, environmental, and ethical
SFE	Small Firm Effect
SRI	Socially Responsible Investing
SRT	Slack Resource Theory
SSE	Shanghai Stock Exchange
TC	Telecommunications
USSIF	United States Forum for Sustainable and Responsible Investment
UT	Utilities

Chapter 1

Introduction

Making money while making a difference.

This is the fundamental thought that drives this thesis. In a world full of crises, there is opportunity. Ethical Investment might be one of the biggest opportunities and a strong contributor to positive change and sustainable development in the investment field.

1.1 Ethical Investment – background and current development

Ethical Investment (EI) can be understood as an integration of ethical values, including environmental concerns, in the investment decision process.

EI and its corresponding fields, such as Green Investment, Socially Responsible Investment and Environmental, Social, and Governance (ESG) Investing, are rapidly growing. In 2020, global sustainable investment reached $35.3 trillion in five major markets, with a 15% increase in the past two years. The sustainable investment assets under management comprised 35.9% of total assets under management in 2020, up from 33.4% in 2018 (GSI Alliance, 2021).

Despite the increasing prominence and volume, the academic literature does not offer a conclusive answer on the impact of Ethical behaviour on financial performance which is the major motivation of this research. Overperformance (Yu and Choi (2014), Tripathi and Bhandari (2015), Roy (2017), Chen et al. (2021), Lönneqvist (2022), Sahamkhadam and Stephan (2022)), underperformance (Renneboog et al. (2008), Iraya and Musyoki (2013), Trinks and Scholtens (2017) as well as no significant difference in performance (Asmudson and Förster (2001), Hussein (2004), and Schröder (2004)) of EI over conventional investing has been found.

The varying results might be due to several reasons that are partly already discussed in literature: different definitions (Sparkes (2001), Sandberg et al. (2009)), different screening methods (Diltz (1995), Diltz (1995), Barnett and Salomon (2006), Tippet and Leung (2001)), difficulty and variation of assessing social performance (Garcia-Castro et al., 2010 and Gangi et al., 2022), different time frames (Garcia-Castro et al., 2010, Ferrat et al., 2021), and

different or unsuitable measurement return metrics (Gelerna et al., 2008). This thesis further develops its own comprehensive Ethical Scoring System to enhance and enable comparability and transparency and includes the comparison of different countries, effects of industries and the partially neglected effect of company size.

1.2 Research Aim, questions and outline of methodology

This research aims to examine the impact of Ethical behaviour on the financial performance with respect to multiple factors to fill the gaps of mixed results reported in literature.
The research questions and methodology are grouped into three categories, namely country, industry, and size. Detailed development of the research questions and methods are elaborated in the individual corresponding chapters. All empirical tests are based on a self-developed comprehensive ethical scores dataset which avoids the piecemeal approach employed in the existing literature.

1.2.1 Country

Firstly, the impact of Ethical Behaviour on Financial Performance with regards to the country is examined. The USA, Germany and China have been analysed separately and combined. In order to assess the financial performance deeply and to address the critique points by Gelerna et al. (2008), three different return metrics are used, namely the average Abnormal Return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR).

> Research Question 1: What is the impact of ethical behaviour on financial performance in the USA, Germany, and China?
> Research Question 2: Does the impact of ethical behaviour on financial performance varies between countries?

This will be achieved by a descriptive statistical analysis of scores, a Sensitivity Analysis as well as an OLS regression and a Kruskal-Wallis Test.

The findings are important due to the comparability of studies across countries and might give an insight due to the mixed results. They might show that ‘country’ is a crucial variable in the analysis of Ethical Investment. Further, the results might give investors and portfolio managers guidelines in the corresponding countries.

1.2.2 Industry

Secondly, the impact of Ethical Behaviour on Financial Performance with regards to the industry is examined. Despite considerable research in Ethical Investment, no study so far, to the author's knowledge, has looked into the impact of the industry on the relationship between ethical behaviour and financial return. Due to the different nature of each industry and its possible implications for consumer behaviour, there is reasoning for analysing the industry's impact. The main nine industries namely consumer discretionary, consumer staples, energy, financials, health care, industrials, information technology, telecommunication, and utilities, have been examined.

> Research Question 3: Does the impact of ethical behaviour on financial performance varies statistically significant between industries?

This question will be answered by using an OLS regression.

This question is of special importance as no study has evaluated the impact of industry within the Ethical Investment context. The results might give further insights on mixed results in literature and might be valuable information for industry practice.

1.2.3 Company Size

Thirdly, it is investigated whether the size of the company has an impact on the Ethical Score of a company. In the literature, there are two conflicting theories: The Slack Resource Theory (SRC) which states that bigger companies have a better corporate social performance and the Small Company Bias Theory (SCB) that states that smaller companies have a better corporate social performance. This thesis tries to comprehend and analyse the impact of the company size with different size measurements, namely revenue, market capitalization, number of employees, and total assets within different countries to explain conflicting results in the literature.

> Research Question 4: Does the company size influences the impact of ethical behaviour on financial performance?

The thesis uses an OLS regression with four different size metrics.

Answering this question will shed new light on these two contradicting theories in literature, namely the Small Company Bias and the Slack Resource Theory. A deeper and more comparable understanding of size in the context of Ethical Investment will be achieved using multiple size measurements.

1.3 Towards a comprehensive approach and expected contributions

This thesis tries to fill the gaps which are hindering comparability between studies and deepen the state of analysis in the field of Ethical Investment. Therefore, some methodological improvements and innovations have been developed and employed which are summarised in Table 1 below.

Table 1 - Contribution to the current state of research

Contribution	Gap in literature or limitations in existing research	Source	Contribution of this thesis
Theoretical	Different definitions of Ethical Investment impede comparability between studies	Sparkes (2001) Sandberg et al. (2009)	Comprehensive comparison of used definitions and development of own definition that is used for the whole thesis and therefore allows comparability
Methodological	Different screening methods impede comparability between studies	Diltz (1995) Barnett and Salomon (2006) Tippet and Leung (2001)	This thesis uses the most commonly used approach: screening. It is differentiated between a Negative Score (NS), Positive Score (PS), and Ethical Score (ES) which allows for a deeper understanding
	Difficulty and variation of assessing social performance	Garcia-Castro et al., 2010 Gangi et al., 2022	This thesis develops its own Ethical Scoring System to allow for objectivity, transparency, comparability, and a criteria analysis. This is to the author's knowledge the first study to do this at a large scale
	Varying time frames	Garcia-Castro et al., 2010 Ferrat et al., 2021	Studies use different and varying time frames which complicates comparability. This study applies a long-term time frame to all analyses.
	Different and/or unsuitable measurement return metrics	Gelerna et al., 2008	This study uses three return metrics to allow for an extensive analysis.

	Methodology		This study is the first to undertake a score analysis for Negative Score, Positive Score, as well as Ethical Score, and perform a Sensitivity Analysis
Empirical	Different countries		Studies analyse different countries using different time frames and measurements. This study focuses on three big countries and allows for transnational comparability.
	neglection of industry		No study to the author's knowledge has examined the influence of industries when analysis the impact of ethical behaviour on financial return. This study is the first to examine the nine main industries.
	partially neglection of company size / conflicting theories	Luther (1992) Melo (2012) Ahlström and Ficekova (2017) Asamoah (2019)	There are two main conflicting theories, the Slack Resource Theory and the Small Company Bias, regarding the size of the company and its ethical behaviour. This study investigates the impact of ethical behaviour on financial return with regards to the company size

One of the most significant contributors to limited comparability are the varying definitions of EI, the different screening methods as well as variation and limited transparency in assessing social performance. These three aspects are tackled by developing an own Ethical Scoring System (ESS). The ESS allows for an objective and transparent screening and for differentiation between screens which is an important methodological contribution. Further, it allows for transnational comparability on many levels such as transnational and criteria comparability, criteria analysis, country impact, and industry impact which is a significant empirical contribution. These make the findings more robust and shed some new lights for investment professionals and academic research in the area of Ethical Investment.

1.4 Ethical Scoring System

Boffo and Patalano (2020) call for "greater efforts toward transparency, consistency of metrics, and comparability of rating methodologies […]" as they found that different analysts produces ESG ratings of individual companies are based on different methods and are poorly correlated. Therefore, an Ethical Scoring System (ESS) is developed. This thesis uses and analyses the EIRIS Ethical Fund Directory. The most common approach is applied: screening. Screenings mean that companies are excluded (screened-out / Negative Screening) from investments due to "their involvement in certain activities deemed to be negative" or included (screened-in / Positive Screening) due to specific activities or for their "positive contributions to society and the environment" (EIRIS, 2008). The Ethical Fund Directory Analysis results in 26 negative

screens and 25 positive screens. With this ESS, score analysis by country and industry is also possible and has been undertaken.

To evaluate the impact of Ethical Behaviour on Financial performance, multiple factors have to be examined. For this, the thesis is structured as a zooming process: Firstly, the analysis will be done on a country level, then zooming further in on an industry level and lastly, on the level of the size of the company.

To allow for examination of transnational differences, countries with the highest GDP from each continent are chosen as representatives. Due to a lack of data and data availability, Africa is excluded. The countries selected are USA, Germany, and China. From these countries, the companies should cover at least 85% of the equity universe as it covers the large and mid-cap segments of the market and also include the Top 100 largest companies by market capitalisation to get a large sample size. This results in 143 companies for the USA, 122 for Germany, and 111 for China, totalling 376 companies.

Data collection starts in 2018. To achieve a long-term analysis, which usually covers a 10-year period, the start date of collection should be 2007. But due to the financial crisis '07/'08 and its effects, the start date is 01/01/2010. An important justification for choosing this time frame is that this will erase errors which might have occurred due to the distortion from the crisis. The start date is 01/01/2010, and the end date is 31/12/2017.

1.5 Structure of thesis

Chapter 2 presents the different definitions used for Ethical Investment and its overlaps and differentiations to similar fields like Green Investment and Socially Responsible Investment. An own definition of EI is developed. Further, the history and origins are assessed as well as its development, presence and outlook.

Chapter 3 discusses the financial performance of Ethical Investment, especially in comparison to conventional investments. Different outcomes, namely outperformance, underperformance and similar performance, are elaborated and reasons for differences in results are compiled and discussed. Further emphasis is put on performance results in three countries, namely the USA, Germany, and China, different industries as well as different sized companies. The Slack

Resource Theory (SRT) and the Small Company Bias (SCB) are discussed with further focus on different size metrics.

In chapter 4, the Ethical Scoring System is developed and its benefits are explained. This will function as the methodological backbone of further analyses. An overall score analysis, a score analysis for the USA, Germany, China, and all three countries combined, as well as a score analysis by industry has been done.

Chapter 5, 6 and 7 function as the zoom-in structure. Chapter 5 covers the impact of Ethical Behaviour on Financial Performance with regard to its country, Chapter 6 with regards to the industry, and Chapter 7 with regards to the company size.

In Chapter 5, a descriptive statistical analysis, a sensitivity analysis, an OLS-regression as well as a Kruskal-Wallis test have been applied.

Chapter 6 uses an OLS regression to gain complex insight, while chapter 7 uses four cross-sectional OLS regressions.

Chapter 8 draws this thesis's conclusion and discusses limitations of this dissertation. Further research suggestions on this topic are presented.

Chapter 2

Definition, History, and Overview of Ethical Investment

2.0 Introduction

As Chapter 1 describes, ethical investment and its corresponding fields like green investment and socially responsible investment undergo a huge growth all over the world (EIRIS, 2020). The European central bank (2021) has already acted towards sustainable investment and is implementing ethical investment into its monetary policy framework. Other central banks such as the Federal Reserve (2021) and the People's Bank of China (2021), are also implementing measures to ensure social responsibility within their monetary policy. Sustainable investment accounts now for more than $39 trillion in the five major markets, with a 34% increase over the last two years (Global Sustainable Investment Alliance, 2021). The United States Forum for Sustainable and Responsible Investment (USSIF, 2021) reported an increase of 42% over the last two years in total US-domiciled assets under management employing ESG investing strategies. The Financial Times (2020) forecasts that ESG funds will outnumber conventional funds by 2025.

This accelerating growth leads to an increased interest in the academic world. However, the research results are ambiguous and partly contradictory, which is further elaborated on in the next chapter. One of the reasons for that might be that there is no consensus or agreed framework to determine what constitutes as Ethical Investment (Bartholomeusz, 2021). Therefore, it is examined in this chapter which different definitions are used, where these overlap and wherein they are different. An own definition of Ethical Investment is developed. Additionally, the field of EI is demarcated from similar and overlapping fields, such as Green Investment and Socially Responsible Investment.
Further, this chapter assesses the origins and history of Ethical Investment (EI), the development as well as its presence and outlook.

2.1. Definition of Ethical Investment

2.1.1 Origins of the word "Ethical"

First, the word origin has to be discussed to find a comprehensive and conclusive definition. The word "ethic" derives from the Ancient Greek word ἠθική (ἐπιστήμη) *ēthikē (episteme),* meaning the custom (understanding), coming from ἦθος *ēthos*, which means custom or

disposition. The branch of philosophy axiology comprises the sub-branches of ethics and aesthetics, each concerned with values ("axiology". Dictionary). It is the subdivision of philosophy that focuses on the prerequisite and valuation of human actions.
As one of the first, Cicero translated ethic as "philosophia moralis", meaning moral philosophy. Moral philosophy or ethics is a branch of philosophy that involves "systematizing, defending, and recommending concepts of right and wrong conduct." (Internet Encyclopedia of Philosophy).
The founder of the Institute for Global Ethics, Rushworth Kidder, defines ethics as "the science of the ideal human character" or "science of moral duty".
Elder and Paul (2005) define ethics as "a set of concepts and principles that guide us in determining what behaviour helps or harms sentient creatures."
The practical utilisation of ethics seeks to "resolve questions of human morality by defining concepts such as good and evil, right and wrong, virtue and vice, justice and crime." (Internet Encyclopedia of Philosophy).
One of the most often used academic definitions comes from Velasquez and Andre (1992). They stated that ethical means "acting in a morally appropriate manner, based on procedural moral standards or principles such as transparency, integrity, accountability, and non-deceptiveness", or "acting in accordance with a set of substantive moral standards. Moral standards deal with matters that are of serious consequence to human well-being."
Rhodes (2010) also covers the definitions of ethics and morality; ethics are a "set of rules or principles by which an individual governs his or her behaviour. These might be derived from various sources which need not be mutually exclusive." Morality is ultimately sourced from a belief in one or more deities and the associated teachings. This is supported by Binmore (2005), who associates morality with corporate behaviour. Both are the result of human societies' response to evolutionary pressures.

The Cambridge Dictionary defines "Investment" as the "act of putting money, effort, time, etc. into something to make a profit or get an advantage […]". It is a purchase of goods that are not consumed but used for wealth creation. ("investment", Cambridge dictionary)

2.1.2 Development of Definitions for Ethical Investment

One of the first definitions of Ethical Investment (EI) was undertaken by the Catholic Bishops in 1992 (Kreander, 2002). They stated three activities as an ethical investment: (i) actively pursuing good, (ii) avoiding participation in harmful activities and (iii) using shareholdings for social stewardship.

The first academic definition was by Cowton (1989) as an "exercise of ethical and social criteria in the selection and management of investment portfolios, generally costing of campy shares (stocks)." For him, an ethical investor does not make their investment decision only based on risk and return but also on other factors, including armaments, alcohol, gambling, tobacco, advertising and repressive regimes. He categorizes ethical investors into two categories: firstly, ethical investors who use an active strategy, and second those who use a passive strategy. The first group uses shareholdings to work for change in company practice or policies that offend the investors' ethical values (nowadays called engagement strategy/shareholder activism). The second group just avoids holding stocks in offending companies, which is comparable to nowadays's practice of screening approaches.

In 1994, Cowton changed his definition. He stated that EI implied "applying ethical and social criteria in the selection and management of investment portfolios, generally consisting of shares (stocks)." Thus, the investment decision would not be solely based on financial consideration but would also consider the nature of the company's business and the manner in which it carried out the same. He states, that financial return is important, but so is its source. Ethical investing can be seen as a product innovation to help widen choice. He pointed out the irony that its occurrence can be explained in "pure, profit-seeking capitalistic terms, as financial institutions seek to influence and exploit their environment in the interest of profitability." For him, EI and SRI[1] are equal.

In 1999, he changed his definition of EI slightly by stating it as "a set of approaches which include social and ethical goals or constraints as well as more conventional financial criteria in decision over whether to acquire, hold, or dispose of a particular investment."

He now indicates that EI is an approach, and also that EI is not solely a stock selection but also a decision after acquisition of holding, buying, or selling.

This definition was picked up by Kreander in 2002. He novices the definition by just excluding ethical constraints that influence the decision. Therefore, his definition is "Ethical

[1] "the exercise of ethical and social criteria in the section and management of investing portfolios, generally consisting of company shares (stocks). "

investments are a set of approaches which include ethical or social goals as well as more conventional financial criteria in decision over whether to acquire, hold or dispose of a particular investment." In his definition of ethical funds he points out negative screening and a combination of selection criteria. For him, ethical funds are funds which "in addition to conventional financial criteria, in their security selection also employ one or more ethical criteria such that some companies are excluded from their portfolios for ethical reasons." Combining financial goals with ethical goals or values was also the concept for Statman (2000), Schueth (2003), and Shank et al (2005), who defined EI as an integration of personal values and societal concerns with investment decisions.
Tippet and Leung (2001) followed a similar thought process but opine that the definition has to be applied to a broader spectrum. Therefore, they first define value and social values to result into a holistic definition of EI. Following Blamey and Braithwaite (1997), value is an "enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end state of existence." Values are therefore a socially acceptable manifestation of human needs. In accordance with Owen (1990) and Cummings (2000), social values are enduring beliefs that "individuals hold regarding appropriate modes of societal conduct, and desirable states of society." Hence, they depend upon individual preference and belief. Portfolio managers should take social, political, and moral effects of a company's activities into account when making investment decisions. As a result, the formally objective task of fund managers to maximize financial return, subject to only risk, has yield to a third dimension: the social, ethical and main concerns of community. (Gottlieb and Sanzgiri, 1996).

The integration of ethical consideration is also picked up by Sparkes (1995). In contrast to other definitions he also includes environmental considerations explicitly but does not understand EI as an integration but most as a philosophy and combination. He stated that "ethical investment is straight forward, and simply meaning an investment philosophy that combines ethical or environmental goals with financial ones." But he clearly draws the line to green and SRI. Green investment was only concerned with sustainable development, while SRI is not just concerned with sustainable development but also with profit maximization. He explained that the "key distinguishing feature of socially responsible investment lies in its combination of social and environmental goals with the financial objective of achieving a return on invested capital approaching that of the market (Sparkes, 2001). In addition, he identifies the need to differentiate between shareholder activism under SRI, and the advocacy

campaigning by NGOs. In 1998, he suggested to restrict the use of the term “ethical investment” to investment carried out on behalf of value-based organizations such as churches and charities (and NGOs), which the term SRI used in all other cases.
The basic motivation of the organization must not be to make money. He developed four criteria of ethical:

(1) altruism: which means the it must be non-profit making bodies
(2) consistency: Organizations have to have detailed ethical codes and principles
(3) clear decision-making: Those bodies have to tackle ethical dilemmas
(4) transparency and disclosure: Organizations have to issue annual reports.

In 2001, Sparkes included a negative screening approach. EI is normally based upon the avoidance of certain activities. Additionally, he attached two objections on EI:

(1) Ethical unit trusts do not have a generally agreed code of ethics. Mostly are confused or contradictory. In a pluralistic society, it is maybe not possible to find a consistent definition.
(2) Using “ethical“ as a descriptive term to describe retail SRI funds derives from concerns about the lack of any sign of altruism. He states that funds do run on a profit-maximizing basis.

The idea of environmental integration was also picked up by Boatright, who defined Ethical Investment shortly as „investing which takes account of people and the planet. “
Also integrating environmental concerns was Spiller (2000) who included the concept of triple bottom line consideration into the investment decision making by investors who are constantly judging the environmental, social, and financial performance of businesses.
Sandberg and Nilsson (2016) also included environmental considerations explicitly in their definition. They define EI as “the practice of integrating (putatively) ethical, social, and/or environmental consideration into financial investment process – for instance, a mutual fund’s process of deciding what stocks or bonds to buy and sell, or how to relate further to the companies invested in.”
Corporatewatch.org joined Sandberg and Nilsson with the mentioning of environmental considerations and elucidate the term ethical investment as a term that is “usually used to mean the integration of ethical values and social and environmental considerations into investment decisions, rather than basing such decisions solely on financial calculations (expected risk and return).”

As a further addition to environmental criteria, EIRIS added in 2008 shareholder encouragement into their definition: “Ethical and socially responsible investment (as well as responsible and sustainable investment) are terms used to describe any area of the financial sector where social, environmental and ethical principles of the investor (whether an individual or institution) influence which organization or venture they chose to play their money with. It also encompasses how an investor might use their power as a shareholder to encourage better environmental and social behaviour from the companies they invest in.” (sustainability.eu, 2005) Ethical, Sustainable and Socially Responsible Investment are equal in the perception of EIRIS.

Similar to this, is the definition of EUROSIF (2008), which was then adopted by Scholtens and Sievänen (2013), in which “ethical investment, responsible investments, sustainable investments, and any other investment process that combine investors’ financial objectives with their concerns about environmental, social and governance (ESG) issues.”
Integrating ESG factors into the investment decision making process, was later picked up by Roy (2017) as his definition for Socially Responsible Investment.

In contrast to the mentioned definitions, Shepherd (2000) did not find EI as an approach but as an “exercising responsibility as investors for the social and environmental consequences of wealth creation.”
This understanding of responsibility goes hand in hand with the definition of the Financial Times (2017): “An EI is an activity that the investor considers is morally acceptable or these investments considered together.”

Another perception is chosen by Kenton (2018); they found that EI means “using one’s ethical principles as the main filter for securities selection.” He found that the term EI is often used interchangeably with socially conscious investing, but socially conscious funds typically have one overarching set of guidelines that is used to select the portfolio, whereas ethical investing brings about a more personalised result.
Regarding terminology, Sandberg et al. (2009) stated that SRI, EI, or value-based investing are the typical terms used; whereas EI is the oldest phrase, which is slowly replaced by SRI.

Another approach for defining EI is by integrating the strategies applied.
One of the first researchers who used this approach were Langbein and Posner (1980). They made clear that certain securities were excluded that were otherwise attractive because the companies are judged to be socially irresponsible or are behaving in a socially laudable way. They pointed to the fact that this can imply a conflict between social and financial objectives. A similar definition is drawn by Mackenzie (1998), who stated that the principal thing that makes ethical funds different is that they limit their investment to a list of ethically acceptable companies. Button combined the strive for yield of financial return with the exclusion of business areas that the investor disapproves of, such as arms, tobacco, alcohol, apartheid, violation of human rights, nuclear energy, vivisection, racism, or discrimination. This approach was later adopted by Cooper and Schlegelmilch in 1993. The procedure of precluding investment in certain areas is also followed by Bruyn who associates ethical investment with investment in "clean" products, and in companies that are not involved in areas such as alcohol, tobacco, materials of war, and gambling. A slight difference was used by Tennant (2001). He found that EI is investment according to personal principles that have commonly excluded investments such as South Africa, arms, alcohol, gambling, etc.

Moskowitz (1981) started the description of EI with a list that ethical investors are interested in. It contains infrastructure investment, employment practices, nuclear power, infant formulae, multinational operations, defence, protection of the environment, workplace safety, product quality, and disclosure of information.
In 1992, he broadened the scope of his explanation by including "ethereal" factors like morality, justice, and compassion in investment strategies or social and ethical criteria into the investment decision-making process as an integral part of EI.
Also considering ethereal factors was Norren. Ethical behaviour between economic agents is expressed through certain qualities like truthfulness, justice in future dealings and voluntary compliance. He differentiated between altruistic and utilitarian ethical behaviour: Altruistic Ethical behaviour follows a philanthropic standpoint and stems from a fundamental concern for the welfare of others. Utilitarian Ethical behaviour, however, involves voluntary compliance with rules that concern the individual's self-interest but will, if complied, result in more available consumption for everyone. Noreen stated that investors invest ethically to gain utility from the receipt of at least some minimum financial return and also to experience utility from having "done the right thing."

A completely different approach to defining EI is used by Irvine (1987). He identifies three dimensions of EI. His attempt is to clearly define EI, and particularly dealing with the criticism that EI is "soft". His three dimensions are:

(1) Ethical dimension

(2) Aesthetic dimension

(3) Egoistical Dimension

He defines the aesthetic dimension as investors who apply non-material, cultural, or personal values to the investment decision, such as preferences for religious affiliations. The egoistical dimension comprises investment decision based on strong personal ideas about the companies concerned, those ideas being either ethically not financially based.

Also, he pointed on the incentive for ethical investors to be immoral due to the conflict between principles and practices. He assumed, that when enough ethical investors move against one stock, the price will drop. Correspondingly, ceteris paribus, its yield will increase and therefore leave a financial incentive to invest.

It also has to be mentioned that Stenström and Thorell (2007) figured that EI does not include funds donating some portion of their annual returns to charity.

2.1.3. Similar terms for Ethical Investment and its definitions and differentiations

"Ethical Investment" has a lot of commonalities or is often used interchangeably with the following terms (USSIF, 2018): green investing, socially responsible investing, sharia-compliant investing, community investing, impact investing, mission-related investing, responsible investing, sustainable investing, value-based investing

The main terms used are green investing and socially responsible investing. Therefore, these terms are separately reviewed and differentiated in the following subsection.

2.1.3.1 Green Investment

Ethical Investment and Green Investment are often used interchangeably or in a similar context. Therefore, a further look has been undertaken in the definition and the delimitation between Green and Ethical Investment.

Green Investment is aiming at improving the environment through investments. (Dervi et al., 2022) One of the most remarkable milestones in the history of green investment is the launch of the first green bond in 2007 by the EIB (Europäische Investitionsbank, 2017), called Climate Awareness Bond, the first green bond by the World Bank in 2008 and the publishing of the Green Bond Principles in 2014 (ICMA Group, 2016). The Green Bond Principles (2016) define green bonds as "any type of bond instrument where the proceeds will be exclusively applied to finance or re-finance in part or in full new and/or existing eligible Green Projects and which are aligned with four core components of GBP." By the end of 2014, the value of the green bond market exceeded USD 53 billion, indicating the fast pace at which this market is growing and the steadily rising interest in the product (Climate Bond Initiative, 2014).

KPMG (2015) explained green bonds by differentiating them to other bonds. They found that the difference lies in the "management and use of proceeds. Typically proceeds are destined for projects such as energy efficiency, renewable energy, waste management, clean transport, etc."

According to Chen (2018), green investments can range from "companies that are developing alternative energy technology to companies that have the best environmental practices." But his definition leads open if a company that is best-in-class for their sector can also be labelled as a green investment or if it is an absolute term.

2.1.3.2 Socially Responsible Investment

Another term that has to be defined and delimited is Socially Responsible Investment (SRI). The oldest definition of Socially Responsible Investment comes from Bruyn in 1987. He provides four different levels of interpretation of "social investment": descriptive, normative, analytical and theoretical; for this, the normative level is appropriate and is defined as the "allocation of capital to advance the social and economic wellbeing of people."

The approach of pursuing good goes hand in hand with the United Nations-supported Principles for Responsible Investment Initiative (PRI), which is based on the framework of three aspects: environment, society and corporate decision (ESG). In October 2011, 915 investment institutions signed the principles with a total asset of $30 trillion. Though, these principles remain voluntary and not legally binding.

A similar definition strategy is chosen by the World Economic Forum. In 2005, their report stated that it shortened the phrase SRI to "Responsible Investment", which defines the term as "investing in a manner that considers the impact of investments on wider society and the natural environment, both today and in the future."

Kinder (2005) also used the positive screening approach but incorporated the investors' character into his definition; SRI is the "incorporation of the investor's social or ethical criteria in the investment decision-making process."

EuroSIF, the Social Investment Forum, the USSIF, and Kinder (regarding ESG investing) also incorporated a financial criterium to their definition.

EuroSIF (2006) found that SRI "combines investor's financial objectives with their concerns about social, environmental and ethical (SEE) issues."

The USSIF (2016) excluded ethical issues and substituted it with corporate governance. They identified SRI as a "process of identifying and investing in companies that meet certain baseline standards or criteria of Corporate Social Responsibility." They focus on two main goals for SRI by defining it as an "investment discipline that considers environmental, social and corporate governance (ESG) criteria to generate long-term competitive financial returns and positive societal impact."

The two goals are also included in the concept of the Social Investment Forum (2008). SRI incorporates both the investor's financial need as well as an investment's impact on society. It understands corporate responsibility and societal concerns as valid parts of any investment

decision. In contrast to the USSIF, they included encouragement to their definition. “SRI investors encourage corporations to improve their practices on environmental, social and governance issues.” (Blander et al., 2008)
Also taking the financial aspect into account is Kinder (2005) for his definition of ESG investing, which he identifies as an “investment philosophy to inform holistic and sound decision-making of investors for the purposes of both, nourishing a stable economy with acceptable rates of return while at the same time addressing stakeholder’s non-financial concerns to preserve an inhabitable planet.”
Going a step further is PwC. In 2012 their view is that RI is not only the right thing to do but also fundamental to creating value. They reported that responsible investors believe that companies successfully avoiding ESG risks whilst capturing ESG opportunities will outperform over the longer term.

Another approach to defining SRI comes from Friends Provident. Their product “stewardship” is based on the following aims: to exclude companies that harm society, support those that make a positive contribution to society and encourage better business practices. This approach is very similar to the definition of ethical investment from Catholic Bishops as it includes positive and negative screening as well as engagement.

In conclusion, it can be found that EI and SRI are the terms that are mostly used interchangeably due to their high commonalities.

2.1.4 Conclusion

The definitions of Ethical Investment date back to Catholic Bishops and are further developed and defined from there. Academics, companies and institutions have engaged in defining Ethical Investment. The following table summarizes the main definitions of Ethical Investment and indicate whether environmental considerations are integrated as well as a differentiation in approaches; meaning an exclusion of certain investments due to ethical considerations (Negative Screening Approach), an inclusion of certain investments due to ethical considerations (Positive Screening Approach), or an active engagement of the investor through their investment (Shareholder Activism).

Table 2 - Ethical Investment Definitions

Author	Year	Definition	Ethical value integration	Environ-mental consider-ations	Exclusion/ Negative Screening Approach	Inclusion/ Positive Screening Approach	Investor engagement/ Shareholder activism
Catholic Bishops	1992	EI as (i) actively pursuing good, (ii) avoiding participation in harmful activities and (iii) using shareholdings for social stewardship.	X		X	X	X
Cowton	1989	Exercise of ethical and social criteria in the selection and management of investment portfolios, generally costing of campy shares	X		X		
Button		Strive for yield of financial return with the exclusion of business areas that the investor disapproves of	X		X		
Cowton	1994	Applying ethical and social criteria in the selection and management of investment portfolios, generally consisting of shares	X		X	X	
Sparkes	1995	An investment philosophy that combines ethical or environmental goals with financial ones	X	X			
Cowton	1999	Set of approaches which include social and ethical goals or constraints as well as more conventional financial criteria in decision over whether to acquire, hold, or dispose of a particular investment	X		X		
Gottlieb and Sanzgiri	1996	The formally objective task of fund managers to maximize financial return, subject to only risk, has yield to a third dimension: the social, ethical and main concerns of community	X				
Mackenzie	1998	Limiting their investment to a list of ethically acceptable companies	X		X	X	
Shepherd	2000	Not an approach but an exercising responsibility as investors for the social and environmental consequences of wealth creation	X	X			
Spiller	2000	Investors who are constantly judging the environmental, social, and financial performance of businesses	X	X			
Boatright		Investing which takes account of people and the planet	X	X			
Sparkes	2001	As in 1995 but with an inclusion of a negative screening approach	X	X	X		
Kreander	2002	Set of approaches which include ethical or social goals as well as more conventional financial criteria in decision over whether to acquire, hold or dispose of a particular investment	X		X	X	
Schueth	2003	Integration of personal values and societal concerns with investment decisions	X		X	X	
Shank et al.	2005						
Statman	2006						
EIRIS	2008	Any area of the financial sector where social, environmental and ethical principles of the investor (whether an individual or institution) influence which organization or venture they chose to play their	X	X	X	X	

		money with. It also encompasses how an investor might use their power as a shareholder to encourage better environmental and social behaviour from the companies they invest in				
Eurosif	2008	Ethical investment, responsible investments, sustainable investments, and any other investment process that combine investors' financial objectives with their concerns about environmental, social and governance (ESG) issues	x	x	x	x
Sandberg and Nilsson	2016	The practice of integrating (putatively) ethical, social, and/or environmental consideration into financial investment process	x	x		
Corporatewatch.org		Usually used to mean the integration of ethical values and social and environmental considerations into investment decisions, rather than basing such decisions solely on financial calculations	x	x		
Roy	2017	Integrating ESG factors into the investment decision making process	x	x	x	x
Financial Times		An activity that the investor considers is morally acceptable or these investments considered together	x		x	x

Table 2 provides an overview of various definitions for Ethical Investment by various sources over time. It illustrates which definitions include which aspects of the definition, namely value integration, environmental consideration, exclusion/negative screening approach, inclusion/positive screening approach, investor engagement/ shareholder activism. The definitions are listed chronologically.

Based on the definitions that are examined in the above chapter, this thesis defines Ethical Investment as an '*integration of ethical values, including environmental concerns, in the investment decision process by applying a negative as well as positive screening approach and shareholder activism (if applicable).*'

This section has examined the definitions of Ethical Investment over time and compared these. Further, similar terms for Ethical Investment, such as Green Investment and Socially Responsible Investment, have been examined and differentiated from Ethical Investment.

After semantics and various definitions and distinctions of Ethical Investment have been elaborated above, the following section will examine the history, the presence, and the outlook of Ethical Investment.

2.2 History of Ethical Investment

2.2.1 The roots of Ethical Investment

The roots of ethical or socially responsible investing (SRI) date back to the Jewish law, which set out the first specific rules for ethical investment. Later, the Religious Society of Friends, also called Quakers, sought to do the same. In 1758, the Quaker Philadelphia Yearly Meeting prohibited members from participating in the slave trade: buying or selling humans. Another early adopter of SRI was John Wesley (1703-1791), one of the founders of Methodism. In his sermon „The Use of Money", he outlined the basic tenets of social investing, e.g. not to harm your neighbour through your business practices and to avoid industries like mining and chemical production that can harm the workers' health. He presented some important ethical principles, which include the call to avoid profiting from gambling, unfair lending and business practices, exploitation of labour, pollution, and corruption. (Domini, 2001:29)
In general, religious institutions were at the forefront of Socially Responsible Investment; They engaged investors to avoid sinful companies, such as those associated with products such as guns, liquor, gambling, and tobacco (Norfsinger, 2009).

The modern history of Ethical Investment dates back to the 1920s, when the Methodist church started to invest in stock market using a negative screening approach by excluding gambling and alcohol. This movement was extended by the Quakers who also excluded weapon producing companies (Broadhurst et al., 2003). This phenomenon was accompanied by other equity market supplies investors with specific religious requirements, such as the Islamic community, who exclude for example pork production (Renneboog et al., 2008) and fixed-income market, since receiving and paying interest rates is not permitted (Hussein and Omran, 2005).

2.2.2 The start of Ethical Funds and growing demand

The first actual fund that met the needs of socially conscious groups was established in 1928 in the U.S., namely "US Pioneer Fund" (Sulistio, 2011).
The first ethical fund available for private investors was launched in Sweden in 1965 (Stenström and Thorell, 2007) and was called „Ansvar Aktiefond Svergie". The U.K.'s first ethical funds, the Stewardship Unit Trust, the Stewardship Life Fund, and the Stewardship Individual Pension Fund, were established in 1984. The investment criteria are specified in excluding tobacco, arms, alcohol and oppressive regimes (Holden and Parners, 2016).

The first ethical mutual fund that launched in the U.S. started in 1971. The „PAX fund“ was created by a group of Methodist clergy and mandated to avoid investments that would be associated or benefit from the Vietnam War (Pax World Investment, 2017). Also related to the Vietnam War was a conglomerate of actions following the photo of a naked nine year old girl, running with her back burned from napalm dropped on her village. As a consequence, many protest and disinvestments were made against especially against Dow Chemical, the manufacturer of napalm B compound, and other companies profiting from the war (Asongu, 2007). This exemplarily shows that the influence in perception and awareness, influences investing behaviour (Renneboog et al., 2008).

The growing movement of SRI was further fuelled by shareholders who filed against companies investing or working under the apartheid regime in South-Africa in the 1970s. In addition, many individual and institutional investors withdraw their money from companies who did business in South Africa, making Ethical Investment a tool to lobby against industrial activities seen as non-ethical. As a result, Reverend Leon Sullivan, who was a board member for General Motors at that time, drafted a code of conduct for practicing business in South Africa in 1971, which is nowadays known as the „Sullivan Principles“ (Camilleri, 2017).

This led to an economy that suffered under sanctions, which ultimately resulted in the reform process being started in 1989 (The Ethical Partnership, 2017).

Further events and the political climate in the 1960s and 70s influenced the SRI movement permanently. Many economic development projects started and managed by Dr. Martin Luther Kind, the Montgomery Bus Boycott as well as the Operation Breadbasket Project in Chicago functioned as models for modern SRI.

2.2.3 Founding of Institutions regarding Ethical Investment

Further influences and shapers were the woman equality rights movement, civil rights, labour-management, attention to nuclear power and automobile emission control. This leads to the establishment of many fora and institutions:

In 1973, the Church Investors Group was founded in the UK to enable the exchange of views and information between investors working for different denominations (Broadhurst et al., 2003).

In 1981, the American Social Investment Forum was formed as a professional body for all individual and institutional members active in SRI (Puaschunder, 2011).

In 1982, the Trillium Asset Management formed, that identifies itself as the "oldest independent investment advisor devoted exclusively to sustainable and responsible investing" (Thomson Reuters, 2013); they also helped form SRI and social impact groups, including USSIG, Ceres, SIRAN and Open MIC (Trillium Asset Management, 2017). The U.K.'s first independent research service for ethical investors, called EIRIS, was established in 1983.
As a result of the Vietnam War, peace movement, civil rights and anti-nuclear and environmental pressure groups, that were further triggered by accidents such as Chernobyl and Exxon Valdez oil spill, a total asset of $40 billion dollars were socially screened by 1984 (Shapiro, 1992).
The first annual SRI conference took place in 1989; the "Rockies Conference" gathered representatives from the SRI industry (The Ethical Partnership, 2017).

The first institution who developed a definition of Socially Responsible/Ethical Investment were the Catholic Bishops in 1992. They identified three components of ethical investment:
(i) avoiding harmful activities,
(ii) actively pursuing good,
(iii) using shareholdings for social stewardship. (Kreander, 2002)
Those three instructions represent the three mostly used strategies nowadays; negative screening, positive screening, and engaging.

2.2.4 Further Development regarding Ethical Investment

The first time that Ethical Investment collides with governmental obligations was in 2000. A new legislation in the U.K. obliges all private sector pension funds to "consider" socially responsible investment as part of their overall investment policy in accordance with section 35 of the 1995 Pensions Act, which provides a statuary obligation for all pension funds to have a Statement of Investment Principles covering the types of investment, the balance between investment risk, return, and realisations.
The principles of "Responsible Investment" (2017) start with the falling preamble: "As institutional investors, we have a duty to act in the best-long term interest of our beneficiaries. In this fiduciary role, we believe that environmental, social and corporate governance (ESG) issues can affect the performance of investment portfolio […]. Therefore, where consistent with our fiduciary responsibilities, we commit to the following principles […].

Since 2001, ethical investment funds and research are also available in emerging countries: The start made the Brazilian Bank Unibanco as the first sell-side brokerage who offers SRI research. This led to two outcomes: First, Mike Tyrrell, who worked at Jupiter as an SRI fund manager in London, picked up the idea and developed it into something bigger at HSBC and Citigroup. And second, ABN AMRO's operation in Brazil used this research to create the first SRI fund in an emerging market, launched in November 2001 (Revolvy, 2017).
In 2006, the Sudan Divestment Task Force was established in response to the genocide in the Dafur region of Sudan, which was then supported by the US government with the "Sudan Countability and Divestment Act of 2007."
Performance-wise, the ethical fund, namely "Fundo Ethical", was Brazilian's biggest and best-performing stock fund of any kind in 2008 (Camilleri, 2017).
Since 2010, some funds have developed gender lens investing strategies to promote workplace equality and general welfare of women and girls (European Investment Bank Group, 2016).
With regards to the investment vehicle itself, unit trusts are the most used and original form of ethical investment, because they offer the individual investor a vehicle for attaining income or capital growth, together with the lower risk inherent with a portfolio that includes a diversity of securities (Cooper and Schlegelmilch, 1993). Ethical Unit Trusts, by their very nature, seek, by speculation, to extract maximum profit from their portfolio of shares, and cannot, again by their nature, take the responsibility of ownership seriously. As such, they, and other forms of speculating in shares, cannot fall within a definition of ethical investment, according to Moore (1988).
The oldest ethical fund and largest in terms of assets, established in 1984, is the Friends Provident Stewardship Unit Trust. Other important unit trusts are the Abbey Life Ethical Trust or the TSB Environmental Investor Fund.

Investing ethically can be seen as an enhancement of the neoclassical homo oeconomicus, which is only driven by economics. The enhanced version also includes sustainability, next to risk, return, and liquidity, into investment decisions.

Regarding the future outlook, Harrington (1992) suggests that socially responsible investing may actually replace the regulatory role of government. Since so much political power lies with large corporations, and since these corporations are reluctant to reason to all but economic pressure, the future of social change lies in the private sector.

2.3 Current Status and Outlook of Ethical Investment

According to the Financial Times (2021), the demand for ethical investment is soaring. Especially the trend in Europe is growing vastly; Europe accounts for half of the global ESG assets. However, the U.S. has the strongest expansion in 2021 and may dominate the ESG category starting in 2022. The possible next wave might come from Asia – particularly Japan (Bloomerg, 2021).

In a report of the OECD (2020), it can be found that ESG investing has grown rapidly over the past decade: the amount of professionally managed portfolios that have integrated key elements of ESG assessments exceeds $17.5trillion globally. The Financial Times (2020) forecasts that ESG funds will outnumber conventional funds by 2025.

PwC (2020) found that as a best-case scenario, ESG funds will experience a more than threefold jump in assets by 2025, increasing their share of the European fund sector from 15% to 57%.

In 2021, a record of $17bn had been invested in ESG bond funds, while BloombergNEF shows that $245.3bn of green bonds have been issued this year, $83.8bn in sustainability bonds and a further $129.2bn in social bonds.

The United States Forum for Sustainable and Responsible Investment (USSIF) (2021) reported an increase of 42% over the last two years in total US-domiciled assets under management employing ESG investing strategies.

Furthermore, the outlook on ESG investing is bright as well. The head of BlackRock's iShares America, Armando Senra, told CNBC in an interview in 2021 that ESG investments could become a $1trillion category by 2030. Bloomberg (2021) estimated that global ESG assets are on track to exceed $53 trillion by 2025, representing more than a third of the $140.5 trillion in projected total assets under management, assuming a 15% growth annually, which is half the pact of the past five years. CNBC (2019) estimates that ESG investing could reach $50 trillion over the next two decades.

Concluding, multiple, if not all, sources predict a flourishing future for Ethical Investment.

One reason for that rapid growth in ESG investing might be due to governmental and individual demand. The UK tries to get pension funds to consider the impact of ESG on investments (Financial Times, 2021). A new cohort of investors, such as millennials and younger investors, put emphasis on ESG issues for their investments (Financial Times, 2021).

This hypothesis is also supported by CNBC (2020), which found that the key driver in hedge fund ESG investing is that hedge fund managers are also feeling the ethical squeeze with growing investor demand. According to the magazine, it is considered the possible next "mega trend" in equities. Also, 81% of Nordic and Dutch pensions said they were already invested in green bonds (Financial Times, 2020).

Schueth (2003) found that the main driver of Ethical Investment is investor demand, as it is a grassroots pressure phenomenon driven by consumer preference. The United States Forum for Sustainable and Responsible Investment (USSIF, 2015) confirmed this through a survey that showed that 80% of US money managers answered that they offer ESG products as a response to client demand (Kline, 2015).

Furthermore, many financial institutions are incorporating ESG factors into their data and research bases.
In 2018, Morningstar added a Sustainability Rating to the financial data to help investors assess the sustainability profile of a company.
In 2020, Bloomberg launched proprietary ESG Scores for more than 4,300 companies across multiple industries to enhance transparency and giving investors the possibility to examine the ESG behaviour of companies.
In June 2021, NASDAQ launched an ESG data hub that connects "investors with sustainability data sets from leading providers across a wide range of categories within Environmental, Social, and Governance (ESG), including biodiversity, gender diversity and carbon."

Therefore, it can be summarised that Ethical Investment, due to its rapid growth, plays a very important role in the financial markets in the future.

As the importance is established above, the next chapter focuses on the financial performance of Ethical Investment through a literature review.

Chapter 3

Ethical Investment Literature Review

3.0 Introduction

As the demand for Ethical Investments is growing and the topic gains rapid importance, it is of huge interest to evaluate the financial performance of Ethical Investment, especially in comparison to conventional investments.

The following chapter will examine the performance of Ethical Investment firstly with regards to outperformance, underperformance and similar performance.
Secondly, it will focus on the difference in performance with regards to the country.
Thirdly, it will focus on the difference in performance with regards to the industry.
And lastly, it will focus on the difference in performance with regards to the different sized companies.

3.1 Performance of Ethical Investment

To evaluate the relationship between ethical investment and performance, Hamilton et al. (1993) propose three hypotheses:

> Either ethical funds/ indices (I) outperform, (II) underperform, or do not add nor destroy value, therefore resulting in (III) equal performance like conventional funds/ indices.

I. Reasons for Outperforming:

Waddock and Graves (1997) argue that EI leads to long-term benefits. Davis (1999) and Domini (1989) assert that the "small company effect" in ethical collective investment brings benefits because the funds are more effective, more diverse, choose their assets carefully, and have lower costs. Another reason could be that investors might underestimate the impact of negative news due to irresponsible behaviour on conventional fund performance, which benefits ethical investors.
Supporters of the outperformance hypothesis are Statman (2000), Hill et al. (2007), Tripathi and Bhandari (2012 and 2015), Roy (2017), Robiyanto et al. (2020), Shabbir and Wisdom (2020), Tao et al. (2022) and several other authors.

II. Reasons for Underperforming:

There are four main arguments for underperformance.

1. Higher Fees: EI does have higher transaction costs and management fees and, therefore, can be seen as a financial sacrifice (Luther et al., 1992; Munell, 1983; Lamb, 1981, Fernandez-Izquierdo and Matallin-Saez, 2008, Azmi et al., 2020).
2. Diversification Risk: Another argument for underperformance is developed by Cullis et al. (1992), who proposed that larger portfolios should have smaller unsystematic risk. Investors will be rewarded for systematic risk, but not for unsystematic risk, which can be diversified away. Therefore, ethical portfolios are an unsound investment because they increase risk unnecessarily.
3. Restricted Investment Portfolio: Smaller return is expected along the lines of classical portfolio theory because socially responsible criteria limit fund managers' allocation possibilities. This leads to additional cost and investment risk, which impacts the portfolio performance negatively. Furthermore, mainstream investors could build the same portfolio as SR investors, but not vice versa (Cowton, 1989).
4. Monitoring Cost: Returns of socially responsible investments might be smaller due to additional monitoring costs (Luther et al., 1992).

Other authors supporting this hypothesis are Renneboog et al. (2008), Trinks and Scholtens (2017), Iraya and Musyoki (2013), and several other authors.

III. Reasons for Equal Performance:

A reason for no impact of ethical behaviour on financial performance is that investors, even when interested in ethical investing, are not willing to invest in unprofitable or less profitable stocks. Therefore, the stock prices will be adjusted depending on the earnings rather than the ethical behaviour (Hamilton et al., 1993). This hypothesis is supported by Langbein et al. (1980), Hamilton et al. (1993), Jo (1993), Statman (2002), Humphrey and Lee (2011), Natarajan and Dharani (2012), Manikas (2020), and several other authors.

Another possible reason may be that specific holdings in two different portfolios do not differ from their conventional counterparts as much as expected (Wallis and Klein, 2015).

Further, it might be that ethical stocks do not differ neither in risk nor in their return profile significantly and therefore, no performance difference can be detected.

Academics have been researching the difference in performance between ethical and conventional investments over the years and found all three different outcomes. A

comprehensive overview of these results is displayed in tables 3 to 5. Table 3 list studies that find overperformance of ethical investments, table 4 lists studies that find underperformance, while table 5 lists studies that find similar or equal performance of ethical and conventional investment.
The most important studies will be examined in the following sections.

To analyse the performance of Ethical Investment in comparison to conventional investment in detail, the chapter is split into three sections referring to overperformance, underperformance, and similar performance.

3.1.1 Overperformance

The first well-known study was undertaken in 1972. Moskowitz ranked 67 selected firms in terms of their level of social responsibility and reports that highly ranked firms have higher returns than the average.

Another study was undertaken by Stevens (2014). To evaluate the performance, he compared the performance of socially screened funds to the S&P 500. He found that eight of 12 screened funds outperformed the benchmark.
When comparing the Domini 400 to the S&P 500 (from 1990-1999), DiBartolomeo and Kurtz (1999) found that the Domini outperforms the S&P. According to them, it is not generated by a social factor but merely due to macroeconomic effects; The DSI 400 has high exposure to growth-oriented stocks and has different industry-specific risks, which results in higher return but also higher volatility.

Luther et al. (1992) found weak evidence of some overperformance on a risk-adjusted basis in a UK study. However, ethical trust investment was highly skewed towards smaller companies. In their opinion, this is due to the fact that it is highly likely in very large diversified companies, to find at least one department that might be considered unethical, whereas small companies might be less likely to be allocated to the “unethical” section. This small company effect was later examined by Luther et al., who found a high correlation between EUT returns and a small company index and suggested that return would be more appropriately evaluated in terms of financial performance by reference to a model which recognises that their returns are influenced by both, general market movements and factor specific smaller companies (Gregory et al., 1997).

Edgerton (2010) analysed four socially conscious funds and found that they outperformed the average mutual funds by an average of 1.1% over the previous five years. Travers (1997) looked at 23 socially responsible mutual funds from Europe, Australasia, and Asia and compared them with MSCI EAFA Index.[2] All mutual funds outperformed the benchmark, but it has to be noted that the time frame was short.

In a comparison of 20 charity funds, with an asset of £822 million, with unconstrained Universe, which are 140 charity funds with a value of £4.5 billion, over a time period of 3 years (1992-1995), the Unconstrained Universe outperformed the Ethical Universe by 0.2% per annum. The ethical restrictions applied were alcohol, armaments, gambling, and tobacco. The WM ex-Vices with these restrictions outperformed the All-Shares overall annualized rolling three years return of the monthly data by, on average, about 1% per annum (WM Company, 1997).

D'Antonio, Johnson, and Hutton (1997) developed a bond index with companies (n=140) out of the KLD 400, that should perform as well as the unscreened indices. As a benchmark, they choose the Lehman Brother Corporate Bond Index (LCB) and for the socially responsible index the KLD's Domini 400. They found that the average monthly returns from May 1990 to 1996 for the SRI portfolio was 0.89% with a standard deviation of 1.45%. This shows that the SRI portfolio has a higher return with lower risk, which means that it outperforms the benchmark. In 2000, they re-evaluated their study and looked at differences in allocation strategies and compared mixed equity and debt SRI portfolios with their conventional benchmark. When looking at different investment strategies, namely buy-hold constant mix, constant portfolio, they found a significant outperformance on a strict return basis for all strategies. Most analysed portfolios outperformed the benchmark, but portfolios with >70% allocated to equity did underperform (D'Antonio, Johnson, and Hutton, 2000).
Another index that was examined was the Fortune 500 index. Epstein and Schnitz (2002) divided it into three groups: first, environmentally abusive firms, second, labour-abusive firms, and third, the rest. They found that the first two groups performed significantly poorer than the remaining portfolio, which indicates an ethical outperformance.

While comparing a self-generated social index to the MSCI World Index and the S&P 500, Bragdon and Karash (2002) also found outperformance of the social index.

[2] Morgan Stanley Capital International Europe, Australasia, and Far East Index

To figure out whether ESG screens improve investment performance, Roy (2017) determined his strategy as follows: he bought stocks with a high SR rating and sold stocks with lower ratings. This strategy helps to increase average abnormal returns, and when the investors apply the best-in-class screening policy, the abnormal return is found to be lucrative. Portfolios based on positive or best-in-class screenings were found to be better performing than those with a negative approach, whose portfolio performance based on a long-short strategy produced negative alphas in all cases. The best-in-class approach is the superior screening approach regarding abnormal returns based on a long-short strategy. He found that past SRI ratings are valuable information for the investor.

The same strategy, buying stocks with a high SRI rating, and selling those with low ones, was applied by Kempf and Osthoff (2007). With this strategy, they were able to earn an abnormal return of 8.7% per annum. They got especially good results when applying the best-in-class approach for stocks with extreme social ratings or a combination of several social screens at a time. The return also stays significantly higher after taking transaction costs into account.

Examining the relationship between CSR and financial performance, a positive relationship was found by several researchers independently (Cochran and Wood, 1984; Verschoor, 1998; Hermans, Akathaporn and McInnes, 1993).
According to Diltz (1995), environmental and military screens lead to significant positive performance compared to other screens.
This is assured by Cohen, Fenn, and Naimon (1995). They constructed two portfolios: one contains companies with “high values”, and the other with “low values”. To assess this, they looked at compliance data, chemical release data, chemical spill data, data on hazardous waste clean-up sites, and environmental litigation proceedings for S&P 500 companies. As a measure, they used return on asset, return on equity and total return to shareholder over a period from 1987 to 1991. They found that there is no penalty for investing in a “green” portfolio. As a matter of fact, they found that low pollution portfolios achieved better returns than high pollution portfolios. They found a positive correlation between environmental performance and high earnings. But they cleared that the correlation does not implicate necessary causation.

Another positive correlation between the environmental and economic performance of companies in the US was found by Russo and Fouts (1997). They constructed environmentally conscious portfolios and compared them with the return of the S&P 500, and their companies were considered not environmentally conscious. Along with the result of the previous study, they also found a positive correlation.
Also, a positive result regarding green/ environmental investments was found by Hart and Abujy (1996). During a four-year sample, they measured emission reduction, return on assets, return on sales, and return on equity and found that it does pay to be green. The operating performance is significantly benefited in the following year. The biggest bottom-line benefits accrued to the high polluters where there are plenty of low-cost improvements to be made. While studying positive and negative environmental events and announcements of various unethical activities, a significant positive abnormal stock return was found as a result of positive environmental events. The marketplace rewards companies. An environmental award in the USA typically posted the share price by 0.82% and raised market value by an average of $80.5 million. A negative event results in a loss of 1.5% of the share price and an average reduction of $390 million in market value (Klassen and McLaughlin, 1996).
Another reassuring study by Derwall et al. (2005) used environmental ratings as part of an active management strategy to construct two matched value-weighted portfolios of U.S. equity, of which the first is non-environmentally friendly and the second is environmentally friendly stock portfolios. He chose the stocks with the best-in-class approach and further analysed both over a time frame from 1995 to 2003. The annualised mean returns for the environmentally friendly portfolio (EFP) were 12.2% and 8.9% for the other. The CAPM alpha for the EFP was 1.29, and for the NFP -1.76, using a $p>0.01$. Taking the Carhart type model as the measurement, the alpha for the EFP was 3.98 and -1.08 for NEFP. This shows a severe superiority of the environmentally friendly portfolio.

Moskowitz (1972) found that good environmental screening does decrease the likelihood of high costs owning to environmental disasters that would decrease conventional portfolio returns. Good social and environmental performance is a signal of good managerial quality, which might lead to an increase in SRI portfolio returns.
Linking to environment is also environmental disclosure. Firms with certain segments of the market that undertook social disclosure outperformed non-disclosing firms, especially with regards to environmental disclosure (Ingram, 1978).

A similar result is found by Anderson and Frankle (1996), who ascertain greater market returns by socially disclosing firms relative to non-disclosing firms. Those firms who continuously disclosed social information had a greater impact on the market than newly disclosing firms.

Looking at companies with South Africa links to evaluate the performance, Wagner et al. (1984), examined the effects of divesting from the 152 companies in the S&P 500 with South African links. They replaced each with the largest company available in the same industry and analysed a five-year time frame (from 1979 to 1984). The returns for the non-South African linked companies were higher by 7% in the annual rate of return than for the South African linked ones. A possible influence on these results could be a smaller company effect. The non-South African linked portfolio was very well diversified with an R^2 of 0.968 but was riskier than the market, having a beta of 1.08. Further, Grossman and Sharpe (1986) found that divestments from South-Africa-related companies lead to superior returns (of 1.87% per annum) with the same level of risk.
In terms of the company's financial performance Wright and Ferris (1997), as well as Teoh et al. (1999), looked into the relationship between South Africa's divestiture and financial performance. Both found no significant relationship or correlation.

Taking a general approach, Schwartz (1973) is certain that socially screened investments may be preferable for their performance potential. He sticks to his statement and renewed it in 2003 by evaluating 14 socially responsible companies and finding that SRI mutual funds yield higher returns because they are subject to more scrutiny than conventional funds. Questioning the preferability, Tripathi and Bhandari found a significantly higher return but also a higher risk by evaluating nine schemes, sic ethical and three conventional of two types from the Taurus Mutual fund (Tripathi and Bhandari, 2012).

When looking at cash flows, Benson and Humphrey (2008) as well as Bollen (2007) found that SRI fund flows are overall less sensitive to past return than conventional funds. A reason for this might be that investors tend to reinvest in already owned funds. The asymmetric flow-performance relationship could be due to difficulty in finding an adequate ethical fund that matched the non-financial goals. Additionally, SRI cash inflows are more stable and independent than those of regular mutual funds.

Gunthorpe (1996) examined whether or not publicly traded corporations are penalised in the financial market for their unethical actions. For this, he analysed 69 companies over a time period from 1988 to 1992 and found that fraud, price-fixing, bribery, and patent infringement typically impose a statistically significant one-day penalty of approximately 1.3% and as much as 23% penalty over a seven day period in terms of share price.

A geographical research was undertaken by Hill et al., who compared socially responsible firms from Europe, Asia, and the USA against their matching benchmark, namely the S&P 500 for the US, Nikkei 225 for Asia, and the FTSE 300 for Europe. They found that European SR companies outperformed their benchmark over a short-term period, while there is no significant difference between Asia and the US. This could be due to differences in national culture's influence on SRI. For a deeper analysis on national difference read: Scholtens and Sievänen (2013).
Another geographically fixed analysis was undertaken by Izquierdo and Saez (2008). They reviewed the performance of ethical investment funds compared to other funds in the Spanish retail market. The financial and social performance of social and ethical funds was superior to or similar to that of conventional funds.

Table 3 - Studies who find outperformance of ethical over conventional investments

Researcher	Sample Period	Performance measurement	Benchmark	Selection of social component
Moskowitz, 1972	1972	Average return	Against each other	67 ranked firms
Grossman and Sharpe, 1986	1960 – 1983	Jensen α, Treynor	NYSE, S&P 500	Construction of South Africa-free portfolio
Luther et al., 1992	1972 – 1990	Jensen α, Treynor, eSDAR	FT all sharpe, MSCIP	15 Ethical unit trusts (UK)
Cohen, Naimon, 1995	1987 – 1991	Return on asset, return on equity, total return to shareholder	Low value portfolio	High value portfolio
Diltz, 1995			No	Screen analysis
Mallin et al., 1995	1986 – 1993	Jensen α, Treynor, eSDAR, Sharpe	No	Ethical mutual funds
Hart, Abujy, 1996		Return on asset, sales, equity	Conventional benchmark	Green investment portfolio
Klasse, McLaughlin, 1996		Return	None	Environmental events and announcements

D'Antonio et al, 1997	1980 – 1996	Jensen α, average returns	LCB	KLD 400
Gregory, Matatko, Luther, 1997			Small company index	Ethical unit trust
Russo, Fouts, 1997		Return, correlation	S&P 500	Environmentally conscious portfolio
Travers, 1997	1992 – 1997	Jensen α, average return	MSCI EAFA	Ethical mutal funds
DiBartolomeo and Kurtz, 1999	1990 – 1999	Jensen α, Treynor	S&P 500	Domini 400
D'Antonio et al., 2000	1990 – 1996	Jensen α, average returns, eSDAR	S&P 500, LCB	KLD 400
Statman, 2000	1990 – 1998	Jensen α, eSDAR, average return	S&P 500	Social index, ethical mutual fund
Bragdon and Karash, 2002	1997 – 2001	Jensen α, CAGR	MSCI, S&P 500	Global LAMP Index
Epstein and Schnietz, 2002	1999	Jensen α, Treynor	No	Split of Fortune 500 in environmental, labour and non-abusive firms
Gompers et al., 2003	1990 – 1998	Tobin's Q	No	Construction of corporate governance index
Derwall et al., 2005	1995 – 2003	Jensen α	No	Self-assessment of eco-efficiently ranked portfolio
Hussein and Omran, 2005	1995 – 2003	CAPM	Subdivision in two parts to compare bull and bear market conditions	Dow Jones Islamic indices
Shank et al., 2005	2000 – 2003	Jensen α, Treynor	NYSE	Ethical mutual funds, fund of most valued SR firms
Hill et al., 2007	1995 – 2005	Jensen α, Treynor	S&P 500, NIKKEI 225, FTSE 300	Ethical mutual funds
Kempf und Osthoff, 2007	1992 – 2004	Jensen α	S&P 500, DSI 400	Best-in-class approach, positive, negative screening of index
Mercer.com, 2007				ESG factors
Izquierdo and Saez, 2008			Spanish retail market	Spanish ethical investment funds
Tripathi and Bhandari, 2012			Indian benchmarks	Indian green and SR stocks
Yu, 2014	1999 – 2009	Propensity-score-matching, return		Ethical mutual funds

Tripathi and Bhandari, 2015	2009 – 2014	Sharpe, Treynor, Jensen α, information ratio, Fama's decomposition measure, t-test, growth regression equation	S&P BSE Sharia 500 Equity Index, CNX 500 Equity Index	Ethical mutual funds
Roy, 2017		Return	Low SR ratings	High SR ratings
Brzeszcynski et al., 2021	2009 – 2021	Risk-adjusted return	CEE stocks	RESPECT index
Okafor et al., 2021	2017 – 2019	Tobin's Q, revenue, profitability	100 tech companies	
Lönnqvist, 2022	2018 – 2021	CAPM, Fama-French, Carhart, Jensen α, Sharpe	Vice Investing	High SR ratings

Table 3 gives an overview of studies that find outperformance of ethical investment over conventional investment. The studies are sorted by researcher, sample period, performance measurement, applied benchmark, and selection of social component. The table is sorted chronologically.

3.1.2 Underperformance

Gregory et al. (1997) detect that both ethical and conventional, trust funds have underperformed compared to the general market at all time of controlling for a size selection bias in the SRI portfolio. SRI funds have produced lower alphas as compared to the conventional fund.

From an analysis of the five oldest social funds, it was shown that not one of those social funds did match the performance of the S&P 500 over a five-year period. (Berss, 1991).

Spicer (1978) and Vance (1975) indicate that a negative relation between social performance and economic performance exists and also, that this negative relationship exists between social disclosure and economic performance (Freedman and Jaggi, 1982; Ingram and Frazier, 1983).

Minor (2007) and Ali and Szyska (2006) reported that SRI might lead to poorer financial performance as compared to the benchmark or conventional investments. Examining the relationship between CSR and financial performance, in contrast to many other researchers, a negative relationship was found by Moore and Robson while investigating the UK supermarket industry and its CSR impact on their financial performance (Moore and Robson, 2002).

When analysing the impact of ethics and stakeholder governance on a risk-adjusted performance of the money management industry, Renneboog et al. (2008) chose Europe, North America, and Asia-Pacific as their geographical area and found that the socially responsible investment funds strongly underperform their benchmarks, but no significant difference between the alphas of social and conventional funds. In addition, corporate governance and social screens yield lower risk-adjusted returns. They conclude that SRI investors are unable to identify the funds that will outperform in the future.

Wang et al. (2020) found that an average "unethical" portfolio would have earned 10% more than the ethical investor, showing a clear over-performance. In an attempt to quantify the cost of imposing ethical investment policy by constructing 40 theoretical portfolios which excluded companies offering one or a group of ethical criteria, Woodall undertook a thorough quantitative analysis. He calculated average market value, portfolio beta, total risk, systematic risk, return, marketability of share, gross yield, industry weighting, Markowitz efficiency, and increased residual risk. He found that EI leads to a small loss (instead of 10% as calculated by Wang) between 4 and 8 basis points. The most likely costs were increased industry specific risk, a bias towards smaller companies, corresponding reduction in marketability of shares, and gross yield (Woodall, 1986).

Teper (1992) did a detailed analysis by first comparing KLD 400 with the S&P 500 from 1985 and 1989, where he found an underperformance, and also comparing a South-Africa free portfolio, a sin-free portfolio, without alcohol, tobacco, and gambling, a portfolio without major defence contractors, and a portfolio that eliminates birth control manufactures. Except the defence contractors, he found an underperformance for all against eh S&P 500 (1979 – 1989).
Another study that excluded certain areas, was undertaken by Kahn et al. (1997). They excluded tobacco from the S&P 500, and found, when comparing it to the original S&P 500 an underperformance (1986 – 1996).

A deeper look into excluding certain stocks or applying a negative screening approach, was performed by Trinks and Scholtens (2017), who investigated the opportunity cost of negative screenings in SRI. They analysed 1,600 stocks over 20 years (1991 – 2012) by a comparative mean-variance analysis on 14 potential issues using risk-adjusted return (Carhart). The returns are value weighted and measured as the natural logarithm of stock's total return index. The 14

controversial issues include: abortion, adult entertaining, alcohol, animal testing, contraceptives, controversial weapons, fur, gambling, genetic engineering, meat, nuclear power, pork, (embryonic) stem cells, and tobacco.
They found that investing in controversial stocks often results in additional risk-adjusted returns, whereas excluding them may reduce financial performance, which means that opportunity costs for negative screening exists. Besides, they noticed that some controversial issues are financially more attractive than others: alcohol, animal testing, contraceptive, fur, genetic engineering, and tobacco display statistically significant positive abnormal returns.
Also applying a negative screening approach were Iraya and Musyoki (2013) who constructed two portfolios each comprised of 20 firms. The first comprises of the NSE 20 share index, the second comprises of 20 stocks that passed the negative screening approach. The target population were all firms listed on the NSE. After that, they analysed the monthly and annual return and Sharpe ratio and found that the NSE 20 has a higher average Sharpe ratio than the social screened.
This result supports easier findings by Hong and Kacperzyck (2009) who found that screened portfolios exhibit reduced returns than conventional portfolios.

In general, if investors incorporate ethical consideration, they loose on average approximately 1% of return per annum. This was found by Müller (1991) who tested ten mutual funds with ethical restrictions and also by Gregory et al. (1997) who stated that they tend to underperform, which they found over a matched pair and cross-sectional analysis.
The lower return was named as an “ethical penalty” by Michelson et al. (2004) and Tippet (2001).

With regards to the reasons for underperformance, Tippet (2001) proved that the three major Australian ethical mutual funds (1991 – 1998) compared to the All Ordinaries Index had higher transaction costs and management fees, which ultimately lead to underperformance. They underperformed the Index by 1.5% per annum.
Subsequent to this research period, Jones et al. (2008) evaluated the performance of 89 ethical funds in Australia from 1986 to 2005. Using the CAPM and Jensen’s alpha, they found that ethical funds significantly underperform the market in Australia, particular in the most recent 5 years (2000 – 2005). The risk-adjusted return, measured as alpha, indicated an average annual underperformance by approximately 1.52% from 2000 – 2005, and by 0.88% over the whole sample period.

Table 4 - Studies who find underperformance of ethical over conventional investments

Researcher	Sample Period	Performance measurement	Benchmark	Selection of social component
Berss, 1991			S&P 500	Social funds
Müller, 1991	1984 - 1988	Jensen α, Treynor	Vanguard Index 500	Ethical mutual funds
Teper, 1992	1979 – 1989	Total return	S&P 500	Ethical mutual funds, KLDD 400 Index
Kahn et al, 1997	1987 – 1996	Total return	S&P 500	Tobacco companies excluded from S&P 500
Gregory, Matatko, Luther, 1997				SRI portfolios
Tippet, 2001	1991 – 1998	Jensen α, Treynor	All ordinaries accumulation index (Australia)	Ethical mutual funds
Geczy et al., 2005	1999 – 2001	Sharpe	Customized benchmark	Ethocal mutal funds
Jones, Laan, Frost, Loftus, 2007	1986 – 2005	CAPM, Jensen α		89 Australian SRI funds
Renneboog et al., 2008		Return, Jensen α,		SRI funds in Europe, North America, Asia-pacific
Iraya and Musyoki, 2013	2007 – 2011	Return, Sharpe, F-and t-test	NSE 20-share index firms	20 negative screened firms (2 portfolios)
Trinks, Scholtens, 2017	1991 – 2012	Return, Carhart	None	Negative screened SRI portfolio
Cornell, 2020	2019	Return, expected return		

Table 4 gives an overview of studies that find underperformance of ethical investment over conventional investment. The studies are sorted by researcher, sample period, performance measurement, applied benchmark, and selection of social component. The table is sorted chronologically.

3.1.3 Similar Performance

In a time-series matched pairs analysis of unit trust performance together with cross-sectional analysis of unit trusts performance, from January 1986 to December 1994, it was found that ethical unit trusts have significant greater exposure to small firm effects. Rudd indicated that social screening will introduce size bias into a portfolio and consequently impair portfolio diversification and long-run investment performance. He stated that small companies result into a higher portfolio beta and have extra market covariation in returns (Rudd, 1981).
They found different results using the Jensen's alpha: when applying the adjusted measure, they found no significant evidence of over or underperformance by ethical trusts; but using

the conventional Jensen's measure, they found significant underperformance (Gregory et al., 1997).
By also using the Jensen's alpha, Hamilton et al. (1993) found that SR is not priced in the market. They compared the financial performance of 32 SRI mutual funds to the value-weighted NYSE return and found no statistically significant difference.

When comparing the Domini 400 to two benchmark portfolios the SRI portfolio does not underperform the BM portfolio, when using Jensen's alpha, Sharpe ration, average monthly raw returns, and variability as measurements. Socially responsible screenings do not increase nor decrease performance or result in greater risk for investor. Sauer (1997) figured that the DSI would have underperformed both benchmarks on a risk-adjusted basis, namely Jensen's alpha and Sharpe, from January 1986 till Aril 1990, but from May 1990 to December 1994, the aggregated risk-adjusted returns of the DSI exceeded those of both unscreened benchmarks. A similar approach was taken three years later. Statman (2000) compared the Domini 400 with the S&P 500 over an eight year period (1990-1998). He also found no over- or underperformance.

While the performance of Australian SRI funds was measured with a multi-factor Carhart model, little evidence of significant differences between SRI funds and the conventional funds was found when risk-adjusted measure is used. Additionally, there is an insignificant difference between the Australian SRI funds and the conventional funds when a conditional multi factor model is considered (Bauer et al., 2005). This result can be approved by Cummings who compared seven Australian ethical mutual funds and also found no significant over- or underperformance of those compared to their local benchmark indices. This result is ascertained by Humphrey and Lee (2011) who also found an insignificant performance difference between Australian SRI and conventional funds when one factor Jensen model, three factor model of Fama-French, and four factor model of Carhart is applied.

Another geographical analysis was undertaken by Schröder (2004). He compared US, German, and Swiss SRI funds and also found no significant underperformance. As a difference, he found that US investors are over investing in blue chip stocks, whereas German and Swiss SRI funds invest more in smaller stocks.

Another study, that has been undertaken for the European market, was in 2009. Cortez et al. (2009) evaluated socially responsible mutual funds from seven European countries and found that the socially responsible funds present in general have a neutral performance in relation to both conventional and socially responsible benchmarks.
Also taking a specific look at the European area were Kreander et al., who analysed 60 European funds, 30 ethical and 30 non-ethical funds over a time period from 1995 to 2001 with a matched pair analysis, established by Mallin et al. in 1995. The matching based on age, size, and investment universe. They used log returns to reduce the effect of skewness in the return distribution. They do find no statistical difference in performance between ethical and non-ethical funds. Also, the results indicate that the management fee is a significant explanatory variable for the Jensen measure, as Chen et al. (1992) and Grinbatt & Titman (1994) suggested.
Also using a matching-pair analysis was Bello (2005) over a time frame from 1993 to 2001. He found no under- or overperformance regarding the effect of asset held, degree of portfolio diversification, and variable effects of diversification on investment performance. He compared 42 socially responsible mutual funds, each of which are matched to two randomly selected conventional funds of approximately equal net asset size, with the S&P 500 and DSI 400. When using Jensen, Sharpe information ratio, and eSDAR, he found no significant difference in performance.
With regards to Rudd (1981), he found no significant difference in the effect of diversification or investment performance. Both groups of funds have significant extra market covariant in returns, indicating that they are substantially undiversified. When using beta as a measure of portfolio risk, the results indicate no significant correlation between the degree of portfolio diversification an investment performance.

When comparing 103 German, UK, and US ethical mutual funds, there is also no significant difference in risk-adjusted return, namely Carhart four-factor model and CAPM, found over the period between 1990 and 2001. Ethical funds seem to be less exposed to market variability. Furthermore, they observed that the performance can be subdivided in three time periods; from 1990-1993: the ethical funds provided lower risk-adjusted returns, from 1993-1998 equal risk-adjusted return, and from 1998-2001 superior risk-adjusted returns (Bauer et al., 2005). In the following year, Bauer et al. (2006) investigated the performance of 25 ethical mutual funds to the Worldscope Australia Index and found, after a catching-up period (1992-1996), equal performance (1996-2003). Expanding their research, in 2007, they further

analysed Canada by using a single factor model and the Carhart multi-factor model for comparing ethical mutual funds to the Canadian stocks in the Worldscope database. The difference in performance of both is statistically insignificant. There is no evidence that the investment style of ethical mutual funds is significantly different from other funds.

A unique study was undertaken by Mill (2006) who had compared a fund that changed its investment style from conventional to socially responsible. He found no statistical difference in performance, but noticed that the SRI fund had a higher variance for the four years after switching.

Silby (2011) found that the fund of the Calvert Group tracks the index with an error of only 1.67. He refers to product life-cycle and examines the growth of the sector with regard to this theory. He stated, that evidence for growth of ethical investment movement does not imply any measure of financial success over other unit trusts. Additional results indicate that social screenings incur extra costs, but there is also a possibility that screening companies lead to greater knowledge of the company which could result in a reduction in risk.

Alexander and Bucholtz (1978) discovered that there is an insignificant relationship between corporate social responsibility and risk-adjusted return by using the same firms considered earlier by Moskowitz.
When comparing a social index with the Vantage Global Advisor 1200 Equity index from 1987-1994, no statistical difference in performance of the model for a screened versus an unscreened portfolio were detected. The results were reviewed with an expected return model that incorporates value and growth components (Guerard, 1997b).

Another approach of evaluating the performance of ethical screened portfolios, was to exclude 177 US S&P companies (42%) operating in South Africa, and then optimise the list of stocks to firm a portfolio that matched the S&P 500 as closely as possible. The effect on portfolio risk was not particularly important: 0.0075% for every unit volatility, which was calculated as the square of annual standard deviation or tracking error to expected loss, was added. Additionally, a loss of only 0.03% per annum might be expected based on an increased annual tracking error of 2-3% (Rudd, 1979).
Similar results were found by Teoh et al. (1999) who looked at companies divesting from South Africa. From 1986 till 1989, they found no significant difference in relative performance compared to their benchmark portfolio.

Tobacco is another alternative excluding criterion. Kahn et al. (1997) compared tobacco stocks to the S&P 500 (1987 – 1996) and found that the ex-tobacco underperformed by 0.21% in terms of total return and a tracking error of 0.46. It was possible to reduce the tracking error to 0.42 – 0.46 by replacing tobacco with seem of the highly correlated industries. In summary, tobacco divestiture does not stand up as an investment decision. It does not reduce risk in a typical pension fund, therefore, tobacco divestiture should be seen as a moral decision.

Also examining different exclusion criteria, was Guerard (1997b). Via a regression analysis, he used four different screened portfolios. The first one screened environmental practice, the second one alcohol, tobacco, and gambling; the third one military involvement, and the fourth nuclear usage. He found that the screened portfolios had a higher excess return, but the only social screen that consistently costs the investor return were military screens. Concluding, he found no statistical difference between the average returns of socially screened and an unscreened universe.

When looking at a geographical area, a study for the European market was undertaken in 2010 by Cengiz et al. The fund portfolios are split in (1) principle-orientated (negative and positive screens), (2) best-in-class approach, and (3) ecology-climate-environment. None of the analysed clusters could be the benchmark. The principle orientated portfolio is little behind the benchmark, whereas the second and third fall well behind.

Diltz (1995) examined a common stock portfolio (January 1989 - December 1991) to figure out if social screenings do have an impact on portfolio performance. He used eleven different ethical screens. He found that the results in general were neutral, but that the market premiums and penalize certain screenings: Good environmental practice, military, and nuclear industry avoidance were beneficial for the portfolio performance, whereas family-related benefits, such as parental leave, and job sharing, do have a negative impact on performance. His research was followed up in 1999, in which 49 socially responsible mutual funds were compared with a random sample of conventional funds in a time period from January 1981 to June 1997. Goldreyer et al. (1999) found no statistically significant difference.

When analysing a particular country, Amnec and Le Sourd (2008) cannot find a performance difference between ethical mutual funds and their conventional alternatives in France from 2002 to 2007. A similar result was for Canada; Asmudson and Foerster (2001) compared Canadian ethical mutual funds with the TSE 300 Index, and likewise found no statistically

meaningful difference in returns. But in addition, they found that even though there was no difference in return, ethical mutual funds appeared to be less risky.

Hornuf and Yüksel (2022) used a meta-analysis using 153 empirical studies containing 1,047 observations of SRI performance and also found that SRI neither outperforms nor underperformance the market portfolio.

Table 5 - Studies that find equal performance of ethical to conventional investments

Researcher	Sample Period	Performance measurement	Benchmark	Selection of social component
Rudd, 1981	1986 – 1994	Jensen α, beta	Matched unit trusts	Ethical unit trust
Hamilton et al, 1993	1981 – 1990	Jensen α	NYSE	Ethical mutual fund
Diltz, 1995	1989 – 1991		Common stock portfolio	Socially screened portfolio
Saurer et al., 1997	1986 – 1994	Jensen α, Sharpe, Average returns	S&P 500, CRSP Value Weights market index	DSI 400 Index
Guerard, 1997	1987 – 1996	Average returns	Vantage Global Advisor 1200 Equity Index	Social Index
Gregory et al, 1997	1986-1994	Jensen α	HSCI, FTASI	Ethical mutual funds
Kahn, Lekander, Leimkuhler, 1997	1987-1996	Return	S&P 500	Tobacco stocks
DiBartolomeo and Kurtz, 1999	1990-1999	Jensen α, Treynor	Russel 1000	Social Index
Teoh et al., 1999	1986 – 1989	Average returns	No	Analysis on companies divesting from South Africa
Goldreyer et al., 1999	1981 – 1997	Jensen α, Sharpe, Treynor		Ethical mutual fund, incl. equity, bond and balanced funds
Cummings, 2000	1986 – 1994	Jensen α, average returns, Treynor, Sharpe	3 Australian market based indices (both large and small cap)	Ethical mutual fund
Statman, 2000	1990 – 1998		S&P 500	Domini 400
Asmudson and Förster, 2001			TSE 300 Index	Canadian ethical mutual funds
Hussein, 2004	1996 – 2003		FTSE Aoo-World index	FTSE Global Islamic Index
Schröder, 2004	2000 – 2002	Jensen α, Sharpe	MSCI	Social Index, ethical mutual fund

Bauer et al, 2005	1990 – 2001	Jensen α, Carhart	Worldscope market value equity index, Fama & French market index	103 ethical mutual funds
Bello, 2005	1993 – 2001	Jensen α, Sharpe, eSDAR	S&P 500, DSI 400	Ethical mutual fund
Kreander et al., 2005	1995 – 2001	Jensen α, Sharpe, Treynor	Matched pair	60 European ethical mutual funds
Bauer et al, 2006	1992 – 2003	Carhart's α	Worldscope Australia Index	Ethical mutual fund
Boasson, E. et al., 2006	Fund inception – 2003	Average return, standard deviation, expense ratio	Market portfolio	Ethical mutual fund
Mill, 2006	1982 – 2004	Jensen α	No	Ethical mutual fund
Bauer et al, 2007	1994 – 2003	Jensen α, average returns, Sharpe, Carhart's α	Canadian Stocks in Wordscope database	Ethical mutual fund
Fernandez-Izquierdo, Matallin-Saez, 2008	1998 – 2001	Multifactor regression model	Ibex 35, International Financial Analyst index, MSCI	Ethical mutual fund
Amnenc & Sourd, 2008	2002 – 2007	Jensen α, Sharpe	SBF 250, DJEuroStoxx, DJ Stoxx, MSCI	Social Index, ethical mutual fund
Cortez et al, 2009		Return	Conventional benchmark	Seven socially responsible mutual funds
Cengiz et al, 2010	1991 – 2009	Treynor, Sharpe, eSDAR, Treynor-Black	World Index Datastream	Ethical mutual fund
Humphrey, Lee, 2011		Fama French, Carhart, Jensen	Conventional funds	Australian SRI
Natarajan and Dharani, 2012	2007 – 2011	Average return		Sharia compliant investment
Lobato et al., 2021	2020	Risk-adjusted performance	SRI ETF	ETF

Table 5 gives an overview of studies that find equal performance of ethical investment and conventional investment. The studies are sorted by researcher, sample period, performance measurement, applied benchmark, and selection of social component. The table is sorted chronologically.

3.1.4 Mixed Results

Mallin et al. (1995) tried to overcome the benchmark problem by conducting a matched pair test. They compared the performance of ethical trust with non-ethical trusts based on fund size and date of formation. This eliminates the small firm effect and short survival period. With their monthly observations of ethical funds, which he defined as one that has either stated negative criteria or positive criteria, he analysed the mean annual returns and mean excess returns. The ethical and conventional funds have outperformed the benchmark indices and the majority of them have generated significant positive alphas. But, both types of funds

have underperformed the benchmark when risk-adjusted measures have been used. When combining the ranks of Jensen's alpha, Sharpe, and Treynor, the ethical fund outperforms the non-ethical.

The matching model was picked up by Yu (2014). They applied the propensity-score-matching method to identify the most comparable conventional fund to each SRI fund. As a result, the SRI funds underperform conventional funds when comparing average monthly returns, but on the risk-adjusted return outperformed the conventional funds constantly.
A different result was found by Mallin et al. (1995) who analysed the monthly returns of 29 ethical and 29 non-ethical trusts in the UK in 1993. When measuring the mean excess return, ethical trusts appear to underperform both non-ethical trusts as well as the market. But on a risk-adjusted basis, ethical trusts outperform non-ethical trusts.

Cummings (2000), who stated that on a risk-adjusted basis, found that an insignificant difference in performance occurs. However, to an extend of directional effect, a slightly superior financial performance by ethical trusts against their respective industry average indexes exists. In contrast, an underperformance against smaller company's index and the market as a whole appears.
A deeper look into smaller company bias was undertaken by Luther et al. (1992). They looked at 15 UK ethical trusts and found that they had a strong smaller company bias and skewness towards smaller companies and were less internationally diversified than other UK trusts. The volatility of the ethical trusts was closer to that of an international diversified index than to a domestic benchmark. Regarding the return, they found little evidence of underperformance, but also weak evidence showing above index performance. They found that EI is correlated with low market capitalization, international diversification, and low dividend yield.

Diltz (1995) found that ethical screening has little impact on portfolio performance. The market rewards companies that had good environmental performance, charitable giving, and avoidance of nuclear and defines involvement, but penalise companies that provide family-related benefits such as maternal/ parental leave, job sharing, and dependent care assistance.

The topic disclosure also plays a huge role in research. Belkaoui (1976) investigated the effect of disclosure on common stock prices, under the assumption that the market would view those companies disclosing pollution abatement expenditures as socially responsible. Results

indicate an above market performance for companies expanding resources on social programs for the first four months' post-disclosure; the remaining 20 months indicated expenditures that had a negative market effect.

Another approach undertaken by EIRIS is constructing eight indices by excluding all companies from the FTA All-Shares Index that offended a particular criterion or in one case a set of criteria. The exclusion criteria included South Africa, nuclear weapons, tobacco, financial free, and combination of those. As a measure they used BARRA's risk measurement over a time period from October 1983 till October 1988. As a result, four of eight indices had an average monthly performance that was better than the All-Shares Index, and four were worse. The five-year cumulative returns vary between 147.4 and 169.2, whereas the All-Shares Index had a return of 161.6. The betas of the indices varied between 0.95 and 1.01 (Beckers, 1989). In a follow-up research four years later, EIRIS constructed a portfolio by screening all the FTA All-Share Index companies against criteria used by most of its clients. This resulted in 151 companies acceptable for an investment which were monitored from January 1988 till October 1991. The annualised return was at 8.1% compared to the return of AllShares of 13.2%, which shows a clear underperformance of the ethical portfolio.

3.1.5 Meta Studies

Furthermore, there are also meta-studies undertaken that condense the results of many studies. One of those meta-studies has been undertaken by Capelle-Blancard and Monjon (2012). They confirm a positive trend for academic articles on SRI between 1982 and 2008. They stated that 2/3 of academic articles cover performance measurement, which makes this research very data driven.

Another meta-study was undertaken by Mill in 2006. He names Wood and Jones (1996) who reviewed 60 empirical studies between 1970 and 1994; Pava and Krausz (1996) who looked at 21 studies between 1972 and 1992; Margolis and Walsh (2003) who examined 127 studies between 1972 and 2002; Orlitzky et al (2003) who analysed 52 studies between 1972 and 1997; Salzman et al (2005) who researched 15 studies between 1975 and 2001; and Hopper and McMillan (2009) who reviewed 51 studies between 1991 and 2007. Mill (2006) concluded a positive impact of SRI on financial performance.

His approach was criticized by Barnett and Salomon (2006) due to their statement that findings cannot produce a definite conclusion given the limitations of the underlying studies.

Wallis and Klein (2015) focussed on the analysis methods in their meta-study: They examined 53 different empirical studies regarding SRI. 35 of them use performance analysis of EI to compare them to conventional benchmarks. 18 studies analysed the relationship between specific behaviour perceived as ethical or unethical by most people and a single company's financial performance. The analysed time period covers 26 years, from 1986 to 2012. 43 of the 53 analysed studies used regression analysis. 27 provide an explanatory contribution on different factors that influence return: 8 studies used CAPM, 2 used Fama-French, and 8 used the Carhart model. 31 used the Jensen's alpha, six used Treynor, 14 Sharpe ratios, three the eSDAR, and three Tobin's Q. 5 studies used a matched-pair approach in addition to regression analysis (Mallin et al., 1995; Gregory et al., 1997; Statman, 2000; Kreander et al., 2005). In addition, they found that the average study sample size is 125 samples and the average relationship study sample size is 198. In terms of performance, from 35 studies, 15 concluded same performance, six underperformance, and 14 outperformances. Outperformance of SRI over their conventional counterparties is significantly larger at a 10% level than the portion finding underperformance.

3.1.6 Conclusion

Despite considerable research, at the moment, there is no consensus in the academic or practitioner communities on the relative performance of SRI mutual funds (Fowler and Hope, 2007).

One reason for the different outcomes could be due to different definitions of Ethical Investment (Sandberg et al., 2009). Another explanation was suggested by Barnett and Salomon (2006) who looked at differences within SRI funds and their screening methods. The relationship between financial and social performance is neither purely positive not purely negative but curvilinear. Therefore, it cannot be concluded that social screening does come at a cost.

The different application of screenings, was also quoted by Diltz (1995), who adjusted that the different performance results depend on the type of screens used in the portfolios.

Also assuring the influence of different screenings on the results, were Tippet and Leung (2001). They differentiated between product exclusion and management behaviour exclusion criteria. If the screening approach is based simply on a company's product, it is likely that profitable companies are excluded from the portfolios and underperformance is reported. If screenings are based on management's ethical behaviour, excluding firms behaving

unethically in this understanding will most likely exclude companies from the portfolio that bear additional costs and therefore, most likely show outperformance compared to their conventional benchmarks.
Garcia-Castro et al. (2010) grouped potential reasons for contradictory results:
First, the difficulty of assessing social performance. Second, the circumstances that might influence the relationship between financial and social performance that are not fully understood. And third, the unclear division of long-term and short-term performance.
Derwall (2011) added a fourth component: the difference in investment styles of investors.

Another critique on the results comes from Gelerna et al. (2008). The mistuned measurement for SRI performance is the Jensen's alpha. They stated that using alpha is not suited to capture the positive SRI effects, because SRI lowers the book-to-market ratio.

These critique points were taken into consideration when designing the research methodology of this thesis. The main points are namely differing definitions (Sparkes, 2001 and Sandberg et al., 2009), differing screening methods (Barnett and Salomon (2006), different applications of screenings (Diltz, 1995 and Tippet and Leung, 2001), difficulty of assessing social performance (Garcia-Castro et al., 2010 and Gangi et al., 2022), as well as differing time frames (Garcia-Castro et al., 2010, Ferrat et al., 2021), the difficult relationship between social and financial performance, the different return measurements used (Galerna et al., 2008), the difference in investment styles (Derwall, 2011), and differing performance measurements.

The fact that numerous researches on the financial performance of ethical funds, indices and stocks has been done with different time frames, different ways to measure ESG and performance as well as in different countries, makes the comparability of these studies challenging. This thesis attempts to differentiate between countries and strives to discover the effects of ethical behaviour on the financial performance of a company with regards to its country. It further aims to examine the impact of industry, which to the author's knowledge, has never been undertaken before, and company size.
Therefore, a literature review for these three factors will be done in the following sections.

3.2 Performance of Ethical Investment in different Countries

In order to get a comprehensive overview this study examines the biggest countries by GDP from each continent. Due to a lack of information and data availability Africa is excluded. For each continent, the country with the highest GDP has been selected resulting in Germany for Europe, the United States of America for America and China for Asia-Pacific.

A research focused on different geographical areas was undertaken by Hill et al. (2007), who compared the performance of socially responsible firms from Europe, Asia, and the USA against their matching benchmark, namely the S&P 500 for the USA, Nikkei 225 for Asia, and the FTSE 350 for Europe. They found that European socially responsible companies outperformed their benchmark over a short-term period, while there is no significant difference for Asia and the US. This could be due to differences in national culture's influence on Socially Responsible Investment (SRI).

Another combined study was carried out by Bauer et al. (2002) who compared 103 SRI funds and 4,384 traditional funds in Germany, the UK, and the US from 1990 to 2001 and found evidence for both higher and lower returns of ethical investment compared to their conventional benchmark. However, the differences are not statistically significant.

3.2.1 Germany

When looking at studies from Germany, many studies find outperformance or similar performance to their matching benchmarks. Taking Germany representatively for Europe, another interesting study was undertaken by Cortez et al. (2009). They found that SRI mutual funds have shown superior performance in Europe as opposed to the United States. (Cortez, Silva, Areal)

Kreander et al. (2005) matched 30 SRI funds with 30 similar non-SRI funds from 1995 to 2001 and found no difference in performance on a risk-adjusted basis.

However, not much research has been done for Germany with regards to Ethical Investment Performance which is a contribution of this thesis.

3.2.2 USA

When analysing the financial performance of ethical investment, most studies cover the USA. Within the research all three, similar performance, outperformance as well as underperformance were found.

Outperformance

Many studies find outperformance of Ethical Investment in the USA. Derwell and Koedijk (2005) examined eight SRI bond funds from 1987 to 2003 and found that SRI bond funds provided similar or superior returns to conventional bond funds. The SRI bond funds performed in-line during an economic expansion, and significantly outperformed during an economic contraction.

In 2008, they compared 15 SRI mutual bond funds and 9 balanced mutual funds versus their conventional counterparts from 1987 to 2003 and found higher returns of the socially responsible investments. However, no results are statistically significant. Additionally, they found that the expenses for SRI funds did not cause underperformance.

In a study comparing the KLD 400, a sustainability index, and the S&P 500 from April 1990 to April 2012, RBC Global Asset Management (2012) found a slight outperformance of the SRI index.

Areal et al. (2010) compared 38 SRI funds to the Vice fund and S&P 500 benchmark from October 1993 to September 2009 and found that the SRI funds performed better during a crisis. However, the also found evidence of both higher and lower returns.

Gil-Bazo et al. (2008) compared 86 SRI mutual funds to 1,761 conventional funds from 1997 to 2005 and found higher risk adjusted performance before and after fees. (Gil-Bazo, Ruiz-Verdu, Santos)

Underperformance

However, some studies also find underperformance of ethical investment. One of them was Geczy et al. (2003) who compared 35 no-load SRI funds and 859 no-load traditional mutual funds from 1963 to 2001 and found lower returns of socially responsible investment. The difference in returns is significant under certain conditions

Similar Performance

Climent and Soriano (2011) examined the performance of US Green mutual funds versus their conventional peers and found that in the period from 1987 to 2009, environmental funds

had lower performance than conventional funds but in the period from 2001 to 2009, green funds achieved adjusted returns not significantly different from the rest of conventional mutual funds.
Bello (2005) compared 42 SRI funds to 84 conventional funds from 1994 to 2001 and found that the risk adjusted returns of SRI funds were indistinguishable from returns of conventional funds.
Due to differing results, no conclusion can be drawn whether Ethical Investment has a better financial performance than conventional investments in the USA.

3.2.3 China

When looking at China, only little research has been done.
Honghui and Xiayang (2011) explored the relationship between the Corporate Social Responsibility Performance and its corresponding financial performance and found that a companies' social responsibility activity can improve their financial performances of the current year, have significant effects on their financial performances of the next year, and vice versa. They found that variation of CSR and financial performance can also significantly influence each other.
Due to the limited amount of research, no conclusion can be drawn for these countries. This thesis aims to fill that gap and through same time frames, same screenings and definitions, aims to provide comparability between the countries.

This thesis also suggests that not only the country might have an impact on the results but the industry might as well which will be discussed in the following section.

3.3 Performance of Ethical Investment in different Industries

This research suggests that due to the different nature of each industry and its implications for consumer behaviour, it might be a significant factor for the return of ethically screened companies. As the industry can have an impact on the financial return in conventional investing (Shergill, Sarkaria, (1999), Matyjas (2014), Meaden and Moore (2016)), the author investigates the impact also for Ethical Investment. Therefore, this study differentiates between nine industries[3] and separates them in the analysis.

To the best of the authors' knowledge, no previous research has examined the impact of the industry, which will therefore be a contribution.

Due to this reason, no literature review can be done.

Zooming further in, not only the country or the industry might have an impact on the financial performance of Ethical Investments but also the company size. This is examined in the next section.

[3] Consumer discretionary (CD), consumer staples (CS), energy EN), financial industry (FI), health care (HC), industrials (IN), information technology (IT), telecommunications (TC), and utility (UT).

3.4 Performance of Ethical Investment in different sized companies

In this section it is reviewed whether the size of the company has an impact on its ethical behaviour.

At the moment, there are two main conflicting theories regarding the size of the company and its ethical behaviour; the Slack Resource Theory (SRT) and the Small Company Bias (SBC). While the Slack Resources Theory states that bigger companies have a better corporate social performance, the Small Company Bias Theory states that smaller companies have a better corporate social performance. Both theories will be discussed in further detail and will be tested.

Furthermore, different size measurements will be discussed as well.

3.4.1 Slack Resource Theory

The Slack Resource Theory (SRT) assumes that financial performance allows firms to become more socially responsible because it provides further resources to engage in CSR and to maintain it (Ullmann, 1985, McGuire et al., 1988, Waddock and Graves, 1997).

Slack-Resource is a term that can indicate a literal meaning of "potentially usable resources" (George, 2005) or a conceptual one related to prior financial performance or profitability (Margolis and Walsh, 2003; Preston and O'Bannon, 1997). Using its literal meaning, it has been operationalised as debt to equity (Alessandri, 2008) or current assets to current liabilities (Bansal, 2005; Strike et al., 2006). In corporate social performance measurements, its conceptual notion is mainly used (Hillman and Keim, 2001; Orlitzky et al., 2003).

Margolis and Walsh (2003) observed that the Slack-Resources hypothesis was tested in 22 of 127 studies.[4] Out of those, only two (Johnson and Greening, 1999, and Waddock and Graves, 1997) have used appropriate corporate social performance data – calculated measures as opposed to perceived measures. Despite the few direct researches, the slack-resources argument is widely mentioned, mainly as a remark that the corporate social performance (CSP) – corporate financial performance (CFP) relationship may involve issues of causality (Brown, 1997; Preston and O'Bannon, 1997; Sabate and Puente, 2003; Seifert et al., 2004; Branco and Rodrigues, 2006; Berrone et al., 2007; Siegel and Vitalino, 2007; Godfrey et al. 2009).

[4] The other studies focused on the good management hypothesis (Backhaus et al., 2002, Brammer and Pavelin, 2006)

Melo (2012) tested the slack-resources hypothesis in corporate social performance. He used 624 American listed companies from 2001 to 2007 and found that prior financial performance positively affects CSP. Further, he confirmed that slack resources are assigned to specific areas of involvement of CSP, namely product issues, community relations, environmental issues, employee relations and diversity of the work force) rather than to a unified conception of CSP.

Ahlström and Ficekova (2017) investigated whether companies choose to allocate their financial slack resources towards improving performance of CSR and the relationship between financial slack resources and CSR score. They found mixed results: Their most important finding is a pattern indicating that during the year 2008, the relationship of CSR and CFP changed from being positive to negative. This implies that the more funds a company has at its discretion, the less likely it is for them to invest it in developing the CSR performance the following year.

Asamoah (2019) examined the relationship between Corporate Social Responsibility (CSR) investments and financial performance under slack resource theory using panel research design which includes a sample of 22 firms out of 34 listed on the Ghana Stock Exchange over a six-year period (2006-2011). He found that CSR has a positive relationship with return on assets, return on sales and slack financial resources, but a negative relationship with return on equity under slack resource theory.

3.4.2 Small Company Bias

The Small Company Bias (SBC) was first mentioned by Luther et al. (1992) who investigates UK ethical unit trusts and found weak evidence of outperformance of ethical funds over their conventional counterparts on a risk-adjusted basis. Next to low dividend yields, they also found a small company bias for their screened portfolios. They found clear evidence that the ethical trusts are more skewed towards companies with low market capitalization than the market as a whole. They stated that the reason for the small company bias might be that it is very likely to find at least one department in a very large diversified company that might be considered unethical, whereas small companies are much less likely to be allocated to the "unethical" section.

In accordance to the findings by Luther et al. (1992), there is a strong evidence for the Small Firm Effect (SFE). The SFE states that smaller firms with lower market capitalization in general tend to outperform larger companies; regardless of their ethical behaviour. Therefore,

a Small Company Bias in conjunction with the Small Firm Effect, might lead to the hypothesis that Ethical investment outperforms conventional investment.
Luther and Matatko (1994) were the first to include not only a broad market index but also an index for companies with low market capitalization ("small cap stocks"). The studies find no clear out- or under-performance of SRI funds.

Despite considerable research, there is no consensus in the academic or practitioner communities on the impact of the company size on the ethical behaviour. The contradicting theories might be due to an application of different definitions of ethical behaviour/ corporate social performance, different methods of measuring a firm's size, different countries, and different sample periods.

3.4.3 Size Measurements

As the measurement of size might be an integral factor for conflicting results the literature is reviewed with special focus on size measurements. The focus is pointed on Revenue, Market Capitalization, number of employees, and Total Assets.

Revenue

Revenue is the income generated from normal business operations and included discounts and deductions for returned merchandise. It is found on the income statement.
The revenue is mainly researched in event studies for certain industries or on specific companies rather than whole countries. This is where this thesis adds to the literature.
In a case study, Ekatah et al. (2011) analysed several key performance indicators reported in the annual reports of Royal Dutch Shell Plc and its sustainability reports and found that a positive relationship between increase in revenue and CSR exists. They stated that an increase in revenue is one of the benefits of CSR.
The Network for Business Sustainability (2020) advised managers to improve environmental performance as they can "lead to better financial performance through both increased revenues and lower costs".
Amine et al. (2020) studied Apple and Nike and their revenues before and after the implementation off CSR programs. They found a positive correlation showing that the revenue increased after CSR implementation. Furthermore, they detected that the revenue increases with their spending on CSR.

Sipilä et al. (2020) examined the effect of CSR on revenue growth for luxury goods by creating a longitudinal dataset that matches CSR ratings and sales revenues over a 10-year period from 2002 to 2011 comprising of 258 companies. They found that CSR engagement has a negative effect on the sales revenue growth of luxury companies.
Rönnegard (2013) investigates whether the corporate social engagement of Tetra Pak has an impact on its revenue. By analysing projects of Tetra Pak, he found that Tetra Pak gains revenue growth by initiating projects whose main purpose is social contribution. Therefore, he concludes that revenue increases with Corporate Social Responsibility.
Hansen (2004) applied a meta study of empirical research. They found that a good Corporate Social Responsibility is linked to reputation improvement with positive influence on customer acquisition and retention, employee attraction, motivation, and retention, access to capital, license to operate, risk management, and a positive influence on stock price, return and revenues.
Using a case study methodology, Thorpe and Prakash-Mani (2003 and 2020) discussed six business success factors of sustainability, which are reflected in the following effects: revenue growth and market access, cost saving and productivity, access to capital, cost saving and productivity. Based upon a cross-industry quantitative empirical investigation Steger (2006) identified similar value drivers including cost decreases, revenue increases, brand value and reputation as well as employee attraction and satisfaction.
In accordance with the results of Hansen (2004), Thorpe and Prakash-Mani (2003), and Steger (2006), Weber (2008) also found that CSR can help companies increase their sales and market share.
Knudson (2018) concluded that growing sustainability concerns mean that consumers are increasingly engaged and aware of the need for a change in our current consumption and production patterns. Meeting customer needs through stakeholder and engagement and CSR can therefore help increase the sales volume, as well as the amount customers are willing to pay.

Concluding, the main body of literature suggests that Corporate Social Responsibility/Ethical behaviour of a company is linked to higher revenue.

Market Capitalization

Market capitalization is the aggregate market value of a company represented in dollar amount. It is computed based on the current market price of its shares and the total number of outstanding shares.

As there is ample evidence that stock markets react negatively to unethical corporate behaviour (Carberry et al., 2018), this thesis assumes that the market capitalization is also impacting or is impacted by the ethical behaviour of a company.

Non-state actors, such as shareholders and the media, gain influence in both promoting ethical business behaviour (Flammer, 2012, Gradstrom and Windell, 2011) and monitoring unethical behaviour (Breit, 2009, Dai et al., 2015). When news of misconduct or unethical corporate behaviour appear, the stock market reacts negatively and the stock price declines. This can be due to costs associated with legal fines and lawsuits (Muohalu et al. 1990), costs for implementing new monitoring practices to ensure that the behaviour does not recur (Alexander, 1999, Karpoff et al., 2008) and the reputational penalties (Karpoff, 2012). Although the efficient market hypothesis assumes that stock prices change when new information becomes available about misconduct (Barberis and Thaler, 2003), the reaction can create a stigma which can lead to more severe consequences (Devers et al., 2009, Dorobantu et al., 2017). Therefore, regardless of the extent of the reaction of the stock market, a relation between the ethical behaviour or the corporate social responsibility of a company and its market capitalization is tested in this thesis.

Past research found conflicting results regarding the market capitalization and the ethical behaviour of a company.

High Market Capitalization

Dornean and Oanea (2018) investigate the relationship for the Romanian companies listed on the Bucharest Stock Exchange (BSE) during the period from 2010 and 2015. They found a positive relationship between CSR activities and market capitalization of firms. They assumed that this is evidence that investors take the attitude of a firm regarding its CSR activities into account.

Lee (2020) examines the impact of CSR on the firm's market value measured as market capitalization on the Chinese stock markets. Using 1,296 observation from the Travel and Tourism industry from March 2006 to December 2017, the results indicate that CSR activity has a negative impact on the market value of the firm for the concurrent period, but from one-period time lag and afterwards CSR activity has a strong positive impact on the market value

and sustains its positive impact. This suggests that the economic effect of CSR on the market capitalization tends to take some degree of lagged effects to be fully showcased.
Flammer (2011) found that shareholders are concerned about the CSR performance of a company and react to these issues accordingly. She found that good CSR performance is rewarded while negative CSR performance is punished, also on a long term basis.

Low Market Capitalization

Luther et al. (1992) who first mentioned the Small Company Bias (SCB) investigates UK ethical unit trusts and found a small company bias for their screened portfolios. His results suggest that there is evidence that ethical trusts are more skewed towards companies with low market capitalization than the market as a whole.
Schroeder (2004) points out that many studies find a significant overweight of SRI funds in companies with a low market capitalization. He suggests, that using a small cap index as Luther and Matatko (1994) advised, is not appropriate but that instead the Fama-French multifactor model is preferred.
A study in 2005 by Bauer, Koedijk and Otten applied a multi-factor model to investigate the performance of British, German, and U.S. investment funds which apply social screening. Besides the fact that they did not find significant differences in performance of the SRI funds to the conventional funds, they found that the SRI funds are tilted towards companies with a low book-to-market value and those with low market capitalisation. The latter result is confirmation of the findings from Luther and Matatko (1994).

Number of employees

The main body of research that links employees and Corporate Social Responsibility looks into the engagement and the impact of increasing CSR on employees (Humière and Chauveau, 2001, Economist, 2008, Gond et al., 2010, Cropanzana and Mitchell, 2005, Bhattacharya and Sen, 2004, Brickson, 2005, Carroll, 2008, Aguilera et al., 2007, Rupp et al., 2006, Swanson and Niehoff, 2001).
To the authors' knowledge, no research has looked into the impact of number of employees, as a measurement of size, on the ethical score or behaviour of a company. Therefore, no literature can be reviewed regarding this size measurement.

Total Assets

Only very few research has been done on Total Assets. One of them was Cho et al. (2019), who analysed whether systematic relationship between corporate social responsibility performance and corporate financial performance exist using 191 sample firms listed on the Korea Exchange. By analysing the correlation between CSR performance and financial performance indicators, it is revealed that a positive relationship between the growth rate of total assets and corporate soundness and social contribution exists.

3.4.4 Summary

This chapter contrasted the two main theories regarding the size of the company and its ethical behaviour. The Slack Resource Theory hypothesizes that bigger companies with potentially more usable resources are able to use them towards Corporate Social Responsibility issues and therefore, enhance their ethical performance.

The Small Company Bias assumes that in large, diversified companies, it is more likely to find unethical departments than it is in smaller companies; therefore, ethical companies tend to be smaller.

The chapter also elaborated on one factor that might influence the conflicting results: the company size measurement. Revenue, Market Capitalization, number of employees, and Total Assets are discussed in detail.

3.5 Conclusion

This chapter examined the performance of Ethical Investment in comparison to conventional investment with special regards to country, industry, and company size.

According to Hamilton et al. (1993), ethical funds can either outperform, underperform or have equal performance as conventional funds. Various reasons can be found for all three outcomes. Studies so far found all three possible outcomes resulting in no consensus in the academic or practitioner communities regarding the performance of ethical funds in comparison to conventional funds.

Possible explanations for differing results are the use of differing definitions (Sparkes, 2001 and Sandberg et al., 2009), differing screening methods (Barnett and Salomon (2006), different applications of screenings (Diltz, 1995 and Tippet and Leung, 2001), difficulty of assessing social performance (Garcia-Castro et al., 2010 and Gangi et al., 2022), as well as

differing time frames (Garcia-Castro et al., 2010, Ferrat et al., 2021), the difficult relationship between social and financial performance, the different return measurements used (Galerna et al., 2008), the difference in investment styles (Derwall, 2011), and differing performance measurements.

When looking at three different countries, namely the USA, Germany, and China, there is no consensus either as for each country differing results have been found.
This research suggests that due to the different nature of each industry and its implications for consumer behaviour, it might be a significant factor for the return of ethically screened companies. However, to the best of the authors' knowledge, no previous research has examined the impact of the industry, which will therefore be a contribution of this dissertation.
When looking at the company size, there are two main conflicting theories regarding the size of the company and its ethical behaviour; the Slack Resource Theory (SRT) that states that bigger companies have a better corporate social performance, and the Small Company Bias (SBC) that states that smaller companies have a better corporate social performance. One reason for the contradicting theories might be the size measurement. This thesis focuses on four size measurements: Revenue, where the literature suggests that a higher revenue is linked to ethical behaviour of a company. Market capitalization, where there are conflicting results. Number of employees, that has not been researched yet. And Total assets, which only has been researched by a few. Cho et al. (2019) found a positive relationship between growth rate of total assets and social contribution.

With the above mentioned, the gaps in literature are multifold. To enhance comparability and transparency and to fill in the research gap of differing definitions, screening methods and the difficulty of assessing social performance, the following chapter develops an own, comprehensive Ethical Scoring System. Further, various empirical tests and methodological improvements are applied and elaborated in the following chapter.

Chapter 4
Ethical Scoring System Development and Analysis

4.0 Introduction

When comparing various research regarding the financial performance of Ethical Investment, the results differ profoundly as elaborated in chapter three. One of the reasons for that, which is mentioned by Sparkes (2001) and Sandberg et al. (2009), is differing definitions for Ethical Investment. Differing definitions and measurements of Ethical Investment complicate comparability.

Amongst others, Boffo and Patalano (2020) call for "greater efforts toward transparency, consistency of metrics, and comparability of rating methodologies […]"

To improve comparability, transparency, and objectivity, this thesis developed its own Ethical Scoring System (ESS). This can fill the gap of transparency and comparability amongst existing scores and contribute to the current status of research.

This chapter elaborates methods and approaches for constructing ethical portfolios or funds, namely Positive and Negative Screening, the Best-in-Class Approach, Shareholder Activism, as well as Community Development Investing. This thesis focuses on screening methods due to its quantifiability, objectivity, transparency and applicability.

An Ethical Scoring System is developed on the basis of the EIRIS Ethical Fund Directory which results into 26 negative screening criteria and 25 positive screening criteria. The number of screens used does not impact the outcome of the analysis as proven by Zwijnenberg (2022). A score analysis for all companies has been conducted as well as an analysis by country. Further, the scores have been analysed by industry.

4.1 Previous Approaches and Methods to Ethical Investment

In industry as well as academic practice, there are different fundamental approaches and methods for constructing ethical portfolios or funds whose application and approaches vary due to personal values and subjective judgement (Boffo and Patalano, 2020; Li and Polychronopoulos, 2020; Tippet and Leung, 2009; Gasparino and Tam, 1998).

These methods can be subdivided in four broad categories: screening, best-in-class-approach, (Shareholder) activism, and community development investment, which will be examined in the following sector.

4.1.1 Screening

Screening is defined as applying a criterion to a universe of potential investments that help winnow the investment candidates (Kinder and Domini, 1997). Screening is the most used method to create ethical portfolio investments (Knoll, 2002; Principles for Responsible Investment, 2020).

Screening can be subdivided into Negative Screening (NS) and Positive Screening (PS), which are examined in the following.

Negative Screening

Negative Screening (NS) is defined as excluding a company with specific characteristics from consideration (Camey, 1994). It has its roots in religious organizations who began to avoid "sin" stocks (Cowton, 1998). Traditional negative screens exclude military contracting, alcohol, tobacco, gambling, and nuclear power (Kinder and Domini, 1997). Later environmental records, product quality, attitude towards consumers, corporate citizenship, employee relations, and cultural diversity (Camey, 1994) as well as political donation and oppressive regimes (Luther et al., 1992) were added.

According to Roy, the main exclusionary themes are alcohol gambling, firearms, military, nuclear power, tobacco, and adult entertainment (Roy, 2017).

In a survey by the Charity Finance Group in cooperation with EIRIS (2009), they found that 87.7% of charities use the negative screening approach. The top three criteria that were found are tobacco (84.5%), pornography (50.0%), and military involvement (48.3%).

A thorough analysis of the used screens will be undertaken in the following section.

Positive Screening

Positive Screening (PS) is refers to an investment decision that is made because a company meets a specific criterion (Camey, 1994).

The Charity Finance Directors' Group (CFDG) and Ethical Investment Research Service (EIRIS) (2009) found that the most important criteria for positive screening were fair-trade (65%), human rights (65%), and energy and rescue conservation (55%). The policy is especially important to avoid risks to reputation (61.9%), conflicts with charity's aims and activities (73%) and eliminate concerns about alienating supporters and donors (32.2%).

Roy (2017) identified seven themes that are mainly used for screening: community involvement, corporate governance, diversity, employee relations, environmental, product, and human rights. He defines them as following: Community relates to how the firm

cooperates with society, corporate governance deals with the firm's governance and direction, diversity deals with the composition of the workforce, employee relation indicates the relationship between the company and its employees, environment is about the environmental management and policies, product deals with the production process and the quality of the product, and human rights deal with the strengths and concerns in relation to sovereignty, land, culture, labour laws, and intellectual property.

Often a two-stage approach is used which combines both screenings. It starts with a negative screening and is followed by a positive screening. This approach offsets the negative screens with the positive and finds an overall score (Cowton, 1999).

The screening itself is often done by third parties like EIRIS that generates scores and "approved lists".

4.1.2 Best-in-class

Within the best-in-class approach, only those companies are considered for investment that, within their industry, meet a defined ranking hurdle among those who act most socially and or ecologically responsible. Companies are scored on a variety of criteria and can vary by sector (Cambridge Institute for Sustainability Leadership, 2018). No industry is excluded on the outset (Cengiz et al., 2010). This means, that the chosen companies are good but not clean (Cowton, 1999), or as clean as they would be if they were chosen through the positive screening. But those better companies can act role models for the less-than-good companies (Bischhofskonferenz, 2010).
KPMG (2015) also includes best-in-class approach (investment in portfolio of companies screened on their ESG policies and performance), or engagement approach in the positive screening strategy.

4.1.3 Shareholder Activism

Shareholder Activism is an activist approach, in which investors use their proxy vote to support an ethical development of companies (Camey, 1994). Shareholders can use their specific rights and privileges as a tool for social change (Sandberg, 2008) and can effect great changes through their voting rights and personal meetings (Solomon et al., 2002).

According to Roy (2017), the best-in-calls approach is often adapted in this category, because industries are not bias free. Sparkes (2001) examines shareholder activism in his research in 2001 and draws a clear line between socially responsible investment and shareholder activism. For him, the key distinguishing feature of SRI lies in its "combination of social and environmental goals with the financial objective of achieving return on invested capital approaching that of the market." Potential investors in SRI are willing to accept a modest reduction on potential returns, but lose interest rapidly if the potential returns drop significantly below the comparable "non-ethical" investments.

However, shareholder activism desires not financial gains but is rather a technique to use voting rights attached to ordinary shares to assert and achieve political, financial, or other objectives (Mackey et al., 2022). The differences between Shareholder Activism and Socially Responsible Investment are cleared up in table 5 (Differences between Shareholder Activism and Socially Responsible Investment) below:

Table 6 - Differences between Shareholder Activism and Socially Responsible Investment

Shareholder Activism	Socially Responsible Investment
Single-issue focus	Multi-issue focus
No financial concerns	Strong financial concerns
Seeks confrontation	Seeks engagement
Seeks publicity	Avoids publicity

4.1.4 Community Development Investing

The difference to the other approaches is that in this approach investors are willing to give up a certain amount of income to provide people with capital who would otherwise have no access to it through conventional channels (Schueth, 2003). These investments can be done through charitable contributions, involvement in public-private partnerships, or volunteer programs (Kurtz et al., 1992).

According to Sparkes (2001), community development investing should not be seen as part of socially responsible or ethical investing, but rather socially directed investment (SDI). Sparkes divided socially investments into two subcategories: SRI (socially responsible investment) and SDI (socially directed investment). SRI is generally an equity-based activity. One of its core aims is to use the power and influence of shareholders to positively affect

corporate behaviour.
SDI, however, is generally a debt-based activity. It occurs when subnormal return is voluntarily accepted for community development or other purposes. SD investors deliberately accept below market return in order to help others. Therefore, Sparkes categorizes community development investing as SDI rather than SRI (Sparkes, 2001).
This opinion is not shared with Bugg-Levine and Emerson (2011) who argue that separation between financial return and contribution to charities leads to a "waste of capital and talent." They promote impact investing, whereby positive impact on social and environmental challenges is executed while optimizing financial returns.

Renneboog et al. (2008) consider negative screening as the first generation of SRI screens, and positive screens as the second generation. The third generation of screens combines positive and negative screenings, while the court generation combines the third generation with the activist approach.
Statista.com (2015) observes the SRI investment amount and strategy for sustainable and responsible investments in Europe. They derived seven strategies, namely: exclusion, norm-based screening, engagement and voting, ESG integration, best-in-class, sustainability themed, and impact investing, are named in descending order (regarding their application). Approximately 6.9 trillion euros are invested in 2013 with application of the exclusion strategy in 2013, making it the dominant strategy. 10.2 trillion euros are invested in 2015. The amount invested grew from 11.11 trillion euros in 2011 to 22.89 trillion euros in 2015.

As this thesis aspires to create a quantitative scoring system with no active involvement, a screening approach will be used as the method for the scoring system in order to evaluate the ethical performance of a company.

4.2 Development of Ethical Scoring System

The aim of this thesis is to investigate the relationship between the ethical score of companies and its financial performance.

4.2.1 Reasons for developing an own ESS

Although there other external Ethical Scoring Systems exist, this thesis adds value to the current state of research by creating its own Ethical Scoring System (ESS) for the following reasons:

1. Transnational Comparability

   At the point of data collection, to the author's knowledge, no external Scoring System scores the analysed companies in all three countries. Therefore, different external ESS would have been needed which impedes comparability as they do not have the same definitions and criteria. Creating an own scoring system which can be applied amongst all three countries adds to the state of literature and allows for a transnational analysis which has not been undertaken in that scale before.

2. Comparability regarding criteria

   As there is no external ESS that covers all companies worldwide, different ESS amongst countries and within countries would have had to be used. However, not all ESS use the same definition for criteria and also do not have identical criteria. This thesis fills the gap by applying the same criteria throughout all companies and countries.

3. Transparency

   Not every external ESS issues a set of definitions for all criteria or does not even list all criteria publicly. This can complicate the analysis and comparison between companies and countries. Therefore, this thesis issues all criteria in table 7.

4. Criteria analysis

   As different external scores have different definitions or overlaps between similar criteria, it adds value when criteria are defined and collected identical. This allows in further analysis to have a deeper look which specific ethical factors have a special influence on the financial performance.

4.2.2 Data and Sample

To identify the criteria that were used in other screening systems, the EIRIS Ethical Fund Directory (2008) has been analysed in order to find the approaches that have been used as well as which positive and negative screens are the most used. A full list of all funds can be found in the appendix in table 49. These subsequently have been used to create a new Ethical Scoring System (ESS).

94.87% of all funds use a negative screening approach, 76.92% use a positive, 52.83% use shareholder activism/ engagement, and 2.56% used the best-in-class approach (includes overlapping).

In the following tables, the five most used and the five least used criteria for negative screening and for positive screening (table 7) can be found.

For those funds who applied negative screening, 30 factors can be found in total.

For positive screening, 27 factors can be found.

Table 7 - Criteria for Negative and Positive Screening in EIRIS Ethical Fund Directory

Negative Screening				Positive Screening			
Five most used		Five least used		Five most used		Five least used	
Armaments	78.12%	Abortion support	1.28%	Environmental Policy	66.67%	Maternity Support	1.28%
Tobacco	74.36%	Leisure & Media	1.28%	Renewable Energy	66.67%	Disabled Help	1.28%
Pornography	66.67%	Air and road transportation	2.56%	Waste management	64.10%	Mass transit systems	1.85%
Alcohol	66.67%	Discrimination	2.56%	Energy conservation	58.97%	Multimedia and telecommunication	1.85%
Gambling	61.54%	Political Donations	3.85%	Recycling	57.69%	Vegetarian food	5.13%

Note: Table 7 presents the criteria for Negative Screening and Positive Screening derived from the EIRIS Ethical Fund Directory. For each screen, the five most used and five least used criteria with the corresponding percentage are presented.

For those funds who used shareholder activism as their approach, five main categories can be found: environment (25.64%), corporate governance (20.51%), labour and human rights (11.54%), transparency (6.41%), and shareholder treatment (2.65%).

As there is a lack of information and no direct outcome measurements in shareholder activism, this approach is excluded for building the Ethical Score System.

For creating a new Ethical Scoring System, the EIRIS Ethical Fund Directory has been used to identify all used screening criteria. All criteria have been counted and analysed. To depict a scoring system that represents the market, a 5% threshold is applied. This means that a

criterion has to be in at least 5% of all ethical funds, to be included as a screen in the new Ethical Scoring System.

This results in 26 negative screens and 25 positive screens, which are listed in the table 8 and 9. All screens are weighted equally to allow for comparability. Further, they are grouped into 8 negative main categories and six positive main categories.

Table 8 - Negative Screens for the Ethical Scoring System

Category	Screen		
Addictive Products	Alcohol	Gambling	Tobacco
Animal Welfare	Animal Testing for cosmetic purposes	Animal Testing for pharmaceutical purposes	Violation of Animal Welfare (meat, diary, fur)
Armaments	Armaments	Weapon Systems	Military involvement
Corporate Responsibility	Low wages	Irresponsible Marketing	
Environment	Environmental Pollution	Water Pollution	Fossil Fuels/ Mining
	Genetic Engineering	Intensive Farming	Nuclear Power
	Pesticide Use	Destruction of Resources	Timber
Human Rights	Human Right Abuses	Child Labour	Pornography
Regimes	Oppressive Regimes		
Miscellaneous	Banking Violation	Health and Safety Offenses	

Note: Table 8 presents the 26 negative screens with their corresponding category. The screens are derived from the EIRIS Ethical Fund Directory.

Table 9 - Positive Screens for the Ethical Scoring System

Category	Screen		
Animal Welfare	Animal Welfare Support	Vegetarian/Vegan Food	
Community	Community Involvement	Housing	
Corporate Responsibility	Policy of “openness”	Stakeholder Relationship	Employee
	Corporate Governance		
Environment	Energy Conservation	Environmental Policy	Recycling
	Renewable Energy	Pollution/Emission Control	Waste management
	Ozone layer protection	Sustainable use of land/food	
Health	Health and Safety	Medical / Health Care	Vegetarian/Vegan
	Fair trade/ organic		
Human Rights	Education & Training	Equal Opportunity	Home & Safety
	Human Rights Support		

Note: Table 9 presents the 25 positive screens with their corresponding category. The screens are derived from the EIRIS Ethical Fund Directory.

4.2.3 Methodology

Every company will be screened with these negative and positive criteria. For each negative criterion a company meets, it will be given one point, e.g. if the company is engaged in alcohol, gambling, and tobacco, it will be given one points for each criterion resulting in three negative points. This is named the Negative Score (NS).

The same procedure is applied for the positive criteria; if the company is engaged in animal welfare, community involvement and vegetarian food, it will be given one point each, resulting in three positive points. This is named the Positive Score (PS).

The difference between the Positive Score and the Negative Score is defined as the Ethical Score (ES).

For example, a company has a Negative Score of 10 due to involvement in ten criteria within the negative screen, and a Positive Score of 15 due to involvement in fifteen criteria within the positive screen, the Ethical Score of the company is (15-10=) 5.

Each company is screened using the Ethical Scoring System. This gives every company a positive score (PS), a negative score (NS) as well as the difference of both, resulting into the final ethical score (ES).

This procedure is done twice, once at the beginning of the sample period (2010) and at the end (2017).

Data collection starts in 2018. To achieve a long-term analysis, which normally covers a 10 year period, the start date of collection should be 2008. But due to the financial crisis ‘07/’08 and its effects, the start date is 01/01/2010. An important justification for choosing this time frame is, that this will erase errors which might have occurred due to the distortion from the financial crisis.

The Development Process of the Ethical Scoring System is illustrated in figure 1 below.

Figure 1 - Ethical Scoring System Development Process

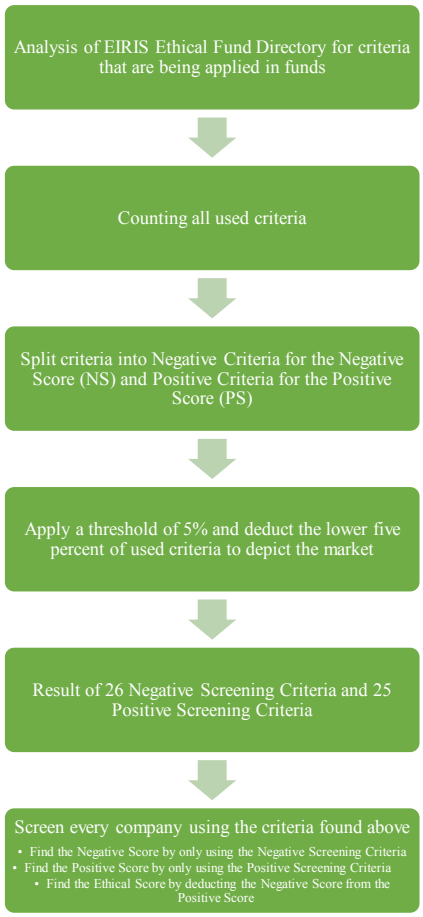


Figure 1 illustrates the development process for the Ethical Scoring System.

4.3. Score Analysis

After the Scoring System has been developed in 4.2 and it has been applied to all companies, an analysis of the scores will be undertaken to gain further insights and deepen the look. First, a score analysis has been undertaken for the scores overall, then divided by country and further by industry.

4.3.1 Overall Score Analysis

For all screened companies a descriptive statistical analysis has been undertaken. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated. Each figure is rounded to four decimal places. 438 companies have been analysed in total.

The descriptive statics of the Positive Score (PS), Negative Score (NS), and the Ethical Score (ES) for 2010 and 2017 can be found in the Table 10.

Table 10 - Descriptive Statistics of the Positive Score, Negative Score, and Ethical Score

	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	8.9817	0.9635	8.0183	11.9018	1.0137	10.8881
Median	9.0000	0.0000	8.0000	13.0000	1.0000	12.0000
Minimum	0.0000	0.0000	-3.0000	0.0000	0.0000	0.0000
Maximum	18.0000	9.0000	17.0000	19.0000	9.0000	18.0000
Amplitude	18.0000	9.0000	20.0000	19.0000	9.0000	18.0000
Standard Deviation	4.3405	1.4250	4.1567	4.0866	1.4429	4.0078
Skewness	-0.0886	2.3114	-0.0702	-0.9436	2.1997	-0.7955
Kurtosis	-0.9417	6.8730	-0.8188	0.1169	6.2285	-0.0895
No of observations	438	438	438	438	438	438

Note: Table 10 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

The results of the descriptive statics analysis show a conclusive picture. The average PS grows by 2.92 from 8.98 in 2010 to 11.90 in 2017, the ES grows by 2.87 to 10.89 in 2017, while the NS only increases by 0.05 points to 1.01. For the median, the results are similar. The PS and ES rose by four points to 13 and 12 respectively, while the NS only grew by one point.

The minimum for PS and NS is the same for 2010 and 2017 at zero, while for ES it increases from -3 to zero in 2017. The maximum increases by one point for PS and ES to 19 and 18 respectively, while the maximum for NS remains the same at 9.

Interestingly, the standard deviation decreases for PS and ES, while increasing slightly for NS, indicating more reliable data for ES and PS over time.
The skewness for PS and ES is negative both in 2010 and 2017, but increases over time; indicating a tilt towards more positive scores. The skewness of NS is positive in 2010 and 2017 but decreases indicating that there are fewer negative scores.
The kurtosis is negative for PS and ES in 2010 indicating fewer outliners while it turns positive for PS in 2017. The kurtosis for NS is positive in 2010 and 2017 but slightly decreases. This portends fewer extreme outliers over time.
In summary, it can be found that the PS and ES increases over time with a lower standard deviation while the NS remains on a similar level.

4.3.2 Score Analysis by Country

For each country as well as for all countries combined, a descriptive statistical analysis has been undertaken. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated. Each figure is rounded to four decimal places. For the USA 154 companies have been analysed, for Germany 142, for China 142, resulting in 438 companies in total.

4.3.2.1 USA

As seen in table 11, the average PS in 2010 was 10.65, with an average NS of 1.6, and an average ES of 9.05. Over an eight year period, in 2017, the average PS increased by 2.82 points while the NS only increased by 0.07 points. The higher growth in PS results in an increased average ES of 11.81. The same can be found when using the Median. The PS increased by 3.5 points while the NS remained on the same level at 1. Thus, resulting in an increase of the ES of 4 points.
When looking at the minimum and maximum of the scores, it can be seen that the minimum PS increased by 1 point, while the NS remains the same at 0. The minimum ES grew from -3 to 0. The maximum rose for PS also by one point from 18 to 19, while the NS remained the same at 9. The maximum ES increased by one point from 17 to 18. This indicates that over the period of eight years, the ethical behaviour of the 154 companies mainly increased while the negative ethical behaviour diminished or remained similar. This is also supported by a scaled down standard deviation for PS and ES while the mean increased. Furthermore, the

negative skewness increased for PS and ES supporting the results. Additionally, the kurtosis of NS remained similar and positive while the kurtosis for PS and ES was negative in 2010 indicating a less extreme outlier character while it turned positive for 2017 portending more extreme data. A positive kurtosis with a negative skewness for ES therefore suggests that there are more extreme positive scores.

Table 11 - Descriptive Statistical Analysis of the Positive, Negative, and Ethical Score in the USA

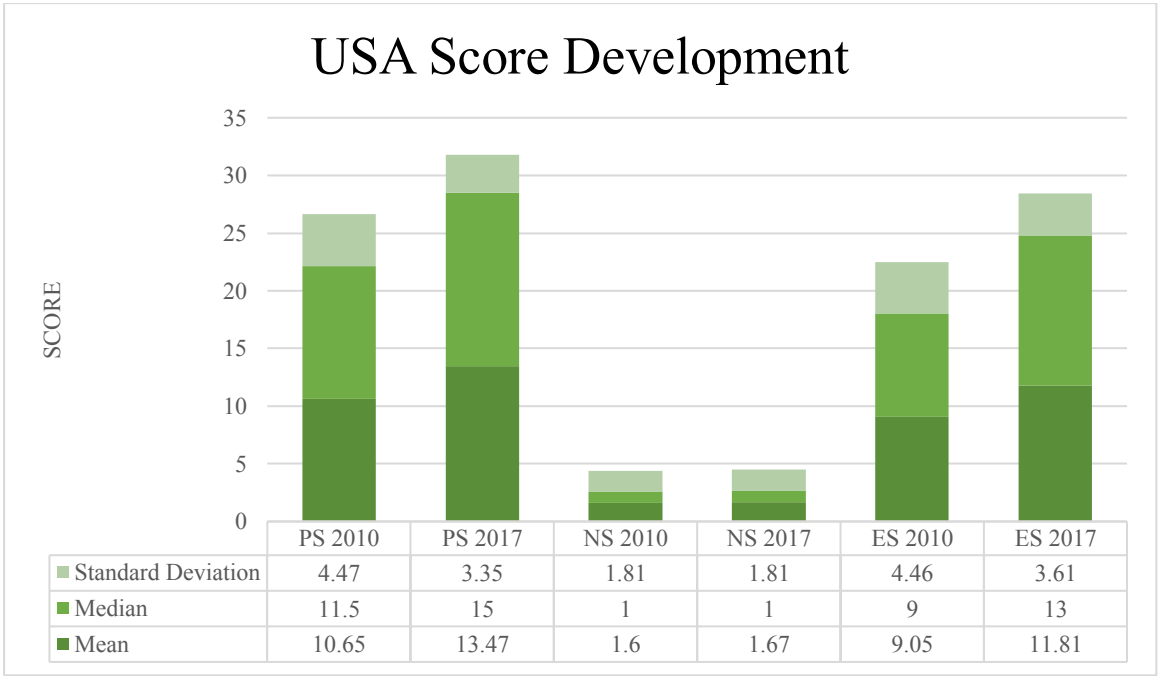
	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	10.6494	1.6039	9.0455	13.4740	1.6688	11.8052
Median	11.5000	1.0000	9.0000	15.0000	1.0000	13.0000
Minimum	1.0000	0.0000	-3.0000	2.0000	0.0000	0.0000
Maximum	18.0000	9.0000	17.0000	19.0000	9.0000	18.0000
Amplitude	17.0000	9.0000	20.0000	17.0000	9.0000	18.0000
Standard Deviation	4.4656	1.8142	4.4552	3.3540	1.8057	3.6093
Skewness	-0.4707	1.5935	-0.3209	-1.5821	1.5677	-1.1300
Kurtosis	-0.9191	3.0185	-0.8391	2.3077	2.9381	0.7919
No of observations	154	154	154	154	154	154

Note: Table 11 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 in the USA. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

The companies in the USA are tending to integrate more positive ethical behaviour while remaining at a similar level regarding the negative ethical behaviour.

An illustration of the development of the mean scores, median scores, and standard deviation of the scores can be found in figure 2.

Figure 2 - PS, NS, and ES Development in the USA



Note: Figure 2 illustrates the standard deviation, median and mean for the Positive, Negative, and Ethical Score in 2010 and 2017 for the USA.

4.3.2.2 Germany

Germany shows a similar picture. The average PS rose from 9.27 in 2010 by 2.59 points to 11.87 in 2017, slightly less than the USA. The NS rose by 0.07 points from 0.52 to 0.59. The same growth as the USA. The ES rose by 2.52 points from 8.75 to 11.27, again slightly less growth than the USA. The median PS and ES rose by 3 points while the NS remains at the same level at 0 points. The minimum PS and ES are 1, while the minimum NS is 1, both in 2010 and 2017. The maximum is also the same in 2010 and 2017, with a maximum PS and ES of 17 and a maximum NS of 6.

In contrast to the USA, the standard deviation rose for all three scores indicating that the data points are more spread out than before. The kurtosis of the data suggests that the NS has more outliners which reduce over time. The PS and ES show fewer extreme outliners, having a negative kurtosis that decreases over time and approaches zero.

Table 12 - Descriptive Statistical Analysis of the Positive, Negative, and Ethical Score in Germany

	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	9.2746	0.5211	8.7535	11.8662	0.5915	11.2746
Median	10.0000	0.0000	9.0000	13.0000	0.0000	12.0000
Minimum	1.0000	0.0000	1.0000	1.0000	0.0000	1.0000
Maximum	17.0000	6.0000	17.0000	17.0000	6.0000	17.0000
Amplitude	16.0000	6.0000	16.0000	16.0000	6.0000	16.0000
Standard Deviation	3.7003	1.0190	3.5309	3.8643	1.0887	3.7306
Skewness	-0.1534	2.7274	-0.1051	-0.8431	2.3603	-0.7324
Kurtosis	-0.7584	8.8897	-0.7620	-0.1321	6.2148	-0.2355
No of observations	142	142	142	142	142	142

Note: Table 12 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 in Germany. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

An illustration of the development of the mean scores, median scores, and standard deviation of the scores can be found in figure 3.

Figure 3 - PS, NS, and ES Development in Germany

	PS 2010	PS 2017	NS 2010	NS 2017	ES 2010	ES 2017
Standard Deviation	3.70	3.86	1.02	1.09	3.53	3.73
Median	10.00	13.00	0.00	0.00	9.00	12.00
Mean	9.27	11.87	0.52	0.59	8.74	11.27

Note: Figure 3 illustrates the standard deviation, median and mean for the Positive, Negative, and Ethical Score in 2010 and 2017 for Germany.

4.3.2.3 China

China joins the same direction like the USA and Germany. It increases its positive ethical performance while the negative almost remains the same. China has the biggest growth for PS and ES and the lowest for NS. The average PS increased by 3.35 points from 6.88 to 10.23, while the average ES increased by 3.34 points from 6.17 to 9.51. The NS almost remains the same only increasing by 0.02 points to 0.73. The median shows a similar growth. The PS rose by 4.5 to 11 points, the ES by 4 points to 10, while the NS remains the same at 1.
The minimum is the same except for ES, where it increases by 1 point from -1 in 2010 to 1 in 2017. The maximum shows only an increase for PS and ES by two points from 16 to 18 and 15 to 17, while the NS remains the same at 7. This supports the idea that the ethical behaviour of the companies improves while the negative ethical behaviour remains on the same level.
The standard deviation rises for all three, similar to Germany and contrasting to the USA.
The skewness is positive for all three scores in 2010, while for PS and ES they are almost zero. Both turn negative in 2017. The skewness of PS and ES is negative, both in 2010 and 2017, indicating less outliners while the NS is positive and high for both 2010 and 2017. This is similar to Germany.

Table 13 - Descriptive Statistical Analysis of the Positive, Negative, and Ethical Score in China

	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	6.8803	0.7113	6.1690	10.2324	0.7254	9.5070
Median	6.5000	1.0000	6.0000	11.0000	1.0000	10.0000
Minimum	0.0000	0.0000	-1.0000	0.0000	0.0000	0.0000
Maximum	16.0000	7.0000	15.0000	18.0000	7.0000	17.0000
Amplitude	16.0000	7.0000	16.0000	18.0000	7.0000	17.0000
Standard Deviation	3.9082	0.9756	3.7679	4.3487	0.9868	4.3048
Skewness	0.1817	2.7707	0.1745	-0.5717	2.7098	-0.4969
Kurtosis	-0.6738	12.6228	-0.6665	-0.4619	11.9495	-0.5253
No of observations	142	142	142	142	142	142

Note: Table 13 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 in China. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

An illustration of the development of the mean scores, median scores, and standard deviation of the scores can be found in figure 4.

Figure 4 - PS, NS, and ES Development in China

Note: Figure 4 illustrates the standard deviation, median and mean for the Positive, Negative, and Ethical Score in 2010 and 2017 for China.

4.3.2.4 Comparison

When comparing all three countries, it is visible that the USA has the highest mean and median for PS and ES but also the highest NS. It has the highest minimum for PS but lowest for ES, and the highest maximum for PS and ES but also the highest maximum for NS. Germany is in the middle between China and the USA with the highest median NS for 2010 and 2017 and ES for 2010, the highest minimum for PS (only for 2010) and ES (for 2010 and 2017) and the highest maximum for NS in 2010 and 2017 and highest maximum ES in 2010. China, however, has the lowest mean and median for PS and ES as well as the lowest minimum for PS and ES (in 2017). Furthermore, it has the lowest maximum for PS in 2010 and lowest ES in 2010 and 2017.

This could indicate that the US is more tilted towards extremer ends, as it has the highest positive score and the highest negative score. However, the ethical score is the overall highest, it shows that the US has the best overall ethical behaviour amongst those three countries.

Germany, however, seems to have a more balanced approach, as it does have the lowest negative score and the middle positive score. Possibly, the corporate culture castigates unethical behaviour the most of these three countries.

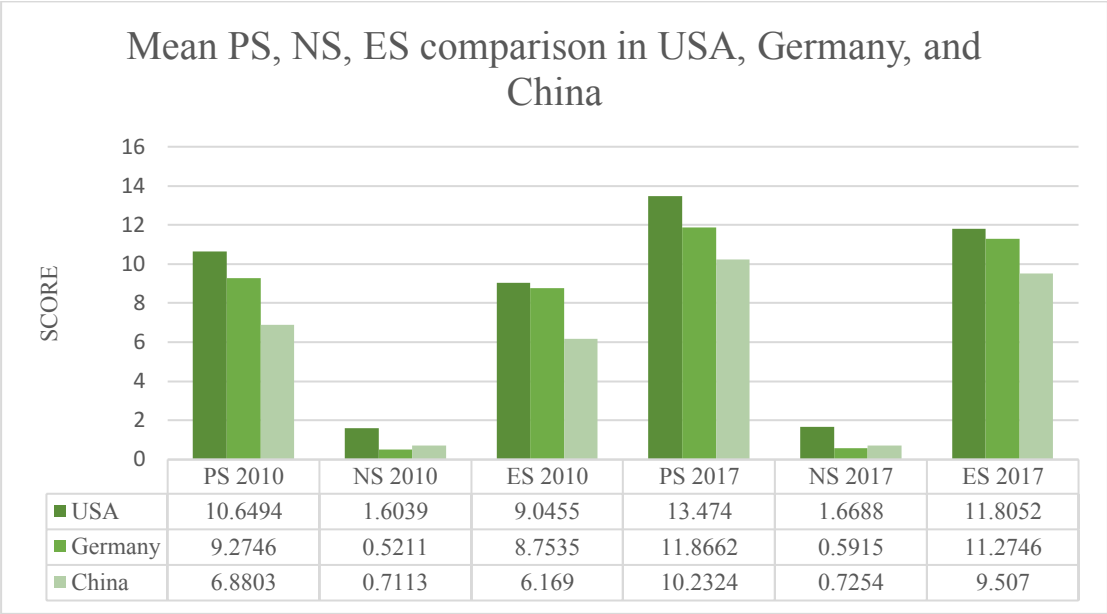
China has the lowest positive and ethical score and the middle negative score. This might indicate that the Chinese corporate culture might not be inclined to put emphasis on ethical behaviour.

When comparing the growth of the scores, the average growth of all combined was 2.92 for the PS, 0.05 for NS, and 2.87 for ES. Interestingly, China has the highest growth rate for PS and ES (3.35 and 3.34 respectively) and the lowest for NS (0.01). This might be an indicator that China is catching up on the ethical behaviour and increases its ethical behaviour and reduces its unethical. The growth of the median supports this hypothesis.

The USA and Germany show similar growth rates. The USA, however, has a higher growth rate for PS and ES, supporting the idea that it is tilted more towards the extremes, but a lower growth rate for NS than Germany. The median growth shows the same results.

A concluding illustration of the mean in all three countries for the Positive Score, Negative Score and Ethical Score in 2010 and 2017 can be found in figure 5.

Figure 5 - Mean PS, NS, ES comparison in USA, Germany and China



	PS 2010	NS 2010	ES 2010	PS 2017	NS 2017	ES 2017
USA	10.6494	1.6039	9.0455	13.474	1.6688	11.8052
Germany	9.2746	0.5211	8.7535	11.8662	0.5915	11.2746
China	6.8803	0.7113	6.169	10.2324	0.7254	9.507

Note: Figure 5 presents a comparison of the Positive, Negative, and Ethical Score for 2010 and 2017 in all three countries, namely USA, Germany, and China.

4.3.2.5 Conclusion

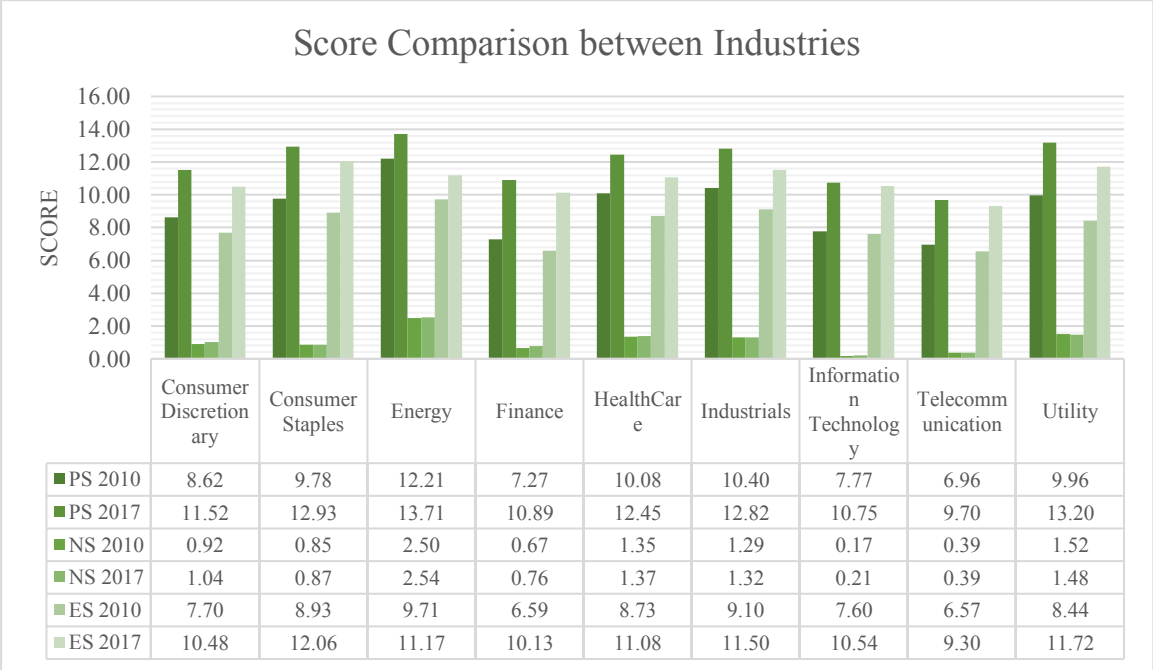
In summary, when analysing the scores of the three different countries, it can be found that in general there is a growth in ethical behaviour in all three countries while the unethical behaviour increases only slightly. The USA has the highest overall scores for PS and ES but also the highest for NS indicating that is has the best ethical behaviour amongst the three countries. Germany shows the lowest growth rate between the three but has the lowest overall NS and the middle score for PS and ES. This shows that Germany seems to have a more balanced approach. As China has the lowest PS and ES and the middle score for NS shows that ethical behaviour might not have been the highest priority in the Chinese corporate culture. However, the highest growth rate in PS and ES and the lowest in NS could be an indicator for a more recent emphasis on the topic.

4.3.3 Score Analysis by Industry

In the chapter before, differences in ethical behaviour between different countries have been found and analysed. This chapter covers the detection of differences in ethical behaviour between different industries; for this, a score analysis has to be undertaken. This Score Analysis will differentiate between industries but not between industries within countries. A distinction between industries within countries can be found in the Appendix in table 54. Further, the regression results for each industry can also be found in the Appendix in the tables 58 to 66. In this analysis, the Positive Score, Negative Score, and Ethical Score will be differentiated for each industry and analysed as well.

When comparing all industries against each other by using the mean value of the Positive, Negative, and Ethical Score from the years 2010 and 2017, multiple results can be found. The statistical results can be found in the figure 6 below.

Figure 6 - Mean Score Comparison between industries



	Consumer Discretionary	Consumer Staples	Energy	Finance	HealthCare	Industrials	Information Technology	Telecommunication	Utility
PS 2010	8.62	9.78	12.21	7.27	10.08	10.40	7.77	6.96	9.96
PS 2017	11.52	12.93	13.71	10.89	12.45	12.82	10.75	9.70	13.20
NS 2010	0.92	0.85	2.50	0.67	1.35	1.29	0.17	0.39	1.52
NS 2017	1.04	0.87	2.54	0.76	1.37	1.32	0.21	0.39	1.48
ES 2010	7.70	8.93	9.71	6.59	8.73	9.10	7.60	6.57	8.44
ES 2017	10.48	12.06	11.17	10.13	11.08	11.50	10.54	9.30	11.72

Note: Figure 6 illustrates the mean Positive, Negative, and Ethical Score in 2010 and 2017 respectively within each of the nine industries, namely Consumer Discretionary, Consumer Staples, Energy, Finance, HealthCare, Industrials, Information Technology, Telecommunication, and Utility.

One very interesting industry is the energy industry: It can be found that the Positive Score (PS) has the highest value in both 2010 and 2017 indicating an ethical behaviour. However, it has also the highest score for the Negative Score (NS) in 2010 and 2017 indicating that the

companies in the energy industry are most involved out of the nine industries in activities that deemed to be negative. The overall Ethical Score (ES) in 2010 shows the highest score amongst the industries indicating that despite negative activities, the energy industry has the highest overall ethical behaviour. In 2017, the highest ES is found for Consumer Staples while the Energy industry ranks on the 6th place. This might be due to the fact, that the Consumer Staples industry did start with a lower value in PS than the energy industry but could increase their ethical behaviour over time while remaining at almost the same level of negative behaviour.

The telecommunication industry shows other interesting results. It has the lowest scores for PS and ES both in 2010 and 2017 indicating that the involvement in activities that deemed to be ethical is at a low level. However, the Negative Scores for 2010 and 2017 show the second lowest overall scores indicating that the telecommunication industry is also not involved in activities that deemed to be negative. It appears that the telecommunication industry is therefore neither involved in ethical nor unethical activities. This might be due to nature of the industry having not much exposure to environmental, social, or governance issues.

The financial industry has the second highest score for PS 2010 and ES 2010 and 2017 while having the second lowest NS in both 2010 and 2017. This indicates that the financial industry is involved in ethical activities are merely in activities deemed to be negative.

Within the information technology (IT) industry, the Negative Score for both 2010 and 2017 is the lowest indicating the least involvement in unethical activities. However, they have low scores for PS with the second lowest Positive Score in 2017. This results in an overall middle to low Ethical Score. In conclusion, the information technology industry appears to have the lowest involvement in negative activities but also a low to medium involvement in ethical activities.

The health care industry has medium Positive, Negative and Ethical Score indicating a medium involvement in both positive and negative activities.

The industrials industry has the second highest Positive Score in 2010 and Ethical Score in 2010 and 2017. With a medium involvement in negative activities, the industrial industry appears to engage in positive activities while moderating their negative activities making it the overall second most ethical industry.

The utility industry has the second highest positive score in 2017 but also has the second highest Negative Scores. This might be an indicator for involvement in activities both deemed negative as well as positive. A reason for that might be the characteristics of the industry.

4.3.4 Conclusion

The fourth chapter has elaborated approaches and methods for constructing ethical portfolios and funds with special focus on Screening, Best-in-class Approach, Shareholder Activism and Community Development Investing.

Due to limitations of transparency and therefore comparability with existing Ethical Scoring Systems (Boffo and Patalano, 2020), this thesis has developed its own Ethical Scoring System on the basis of the EIRIS Ethical Fund Directory. 26 Negative Screening Criteria and 25 Positive Screening Criteria have been compiled and have been applied to 376 companies in three countries, namely USA, Germany, and China.

The score analysis results will help understand further research results in chapter 5,6, and 7.

The overall score analysis shows that the Positive Score as well as the Ethical Score grow more than the Negative Score indicating a trend towards ethical behaviour. The increase in PS and ES goes hand in hand with a lower standard deviation while the standard deviation of the NS remains on a slimier level.

When putting an emphasis on the country when analysing the Positive, Negative and Ethical Scores, interesting results are revealed. It is found that the USA is tilted towards more extreme ends as it has the highest positive and highest negative score. However, overall the USA has the best ethical score amongst the three countries. Germany appears to have a more balanced approach with the lowest negative score and the middle positive score. This might be an indicator that the corporate culture in Germany castigates unethical behaviour the most among those three countries.

China has the lowest positive and ethical score and the middle negative score. This might indicate that the Chinese corporate culture might not be inclined to put emphasis on ethical behaviour. However, it is found that China has the highest growth rate for PS and ES which might be an indicator of a catching-up process.

In general, there is growth in ethical behaviour in all three countries while the unethical behaviour increases only slightly.

Further interesting results can be found when analysis the scores differentiated by industry. Firstly, the results differ among the industries indicating that the industry plays a crucial factor when analysis the impact of ethical behaviour on financial performance. It is found to be statistically significant. The energy industry shows the highest scores for PS as well as NS

in both 2010 and 2017 indicating a high involvement in activities that deemed both negative and positive. The highest ES in 2017 has the Consumer Staples industry. Another industry that shows interesting results is the telecommunications industry with the lowest PS and ES and the second lowest NS implying that the telecommunication industry is therefore neither involved in ethical nor unethical activities. The IT industry has the lowest overall NS but also low to medium high PS and ES. The information technology industry appears to have the lowest involvement in negative activities but also a low to medium involvement in ethical activities.

In general, a definite increase in positive ethical behaviour while lower increase and sometimes even decrease in negative behaviour can be found which indicates a trend towards ethical behaviour and activities that deemed to be positive.

After analysing the score with emphasis on overall analysis, country analysis, and industry analysis, the scores will be used in further research for analysis the impact of Ethical Behaviour on Financial Performance.

Chapter 5

Impact of Ethical Behaviour on Financial Performance: USA, Germany and China

5.0 Introduction

One of the main contributions of this thesis as shown in Table 1 is the transnational comparability of the impact of ethical behaviour on financial performance.
Although the impact of Ethical Behaviour has been assessed in various countries, the comparability of the results is difficult. This is due to different measurements of ethical behaviour and financial return as well as different time horizons.
Due to the developed Ethical Scoring System, the criteria are applied amongst all companies in all three countries and therefore enable a comparison across countries.

This thesis selected the countries with the highest GDP from each continent as representatives. Due to a lack of data and data availability, Africa is excluded. The countries selected are USA, Germany, and China.
This research contributes to literature by assessing three different, large countries with the same measurements over the same time frame with the same ethical criteria in order to enhance objectivity, transparency, and comparability.

It further contributes by analysing the ethical criteria within countries and further uses two mathematical models, namely the widely used OLS-regression and further a Sensitivity Analysis which has not been used for a similar analysis before.

Within the literature, mostly countries are analysed separately complicating the comparability between studies. Some studies have been undertaken that focus on different geographical areas (Hill et al. (2007) and Bauer et al. (2002)), however, they did not find conclusive results. When looking at studies focussing on the USA, Germany, and China, also no conclusive picture can be drawn.
Many studies have been undertaken for the USA but did found different results. While some studies find outperformance (Derwell and Koedijk (2005), Areal et al. (2010), Gil-Bazo et al. (2008)), others find underperformance (Geczy et al. (2003), and some find similar performance (Climent and Soriano (2011), Bello (2005)).

For Germany, not much research has been done. Some studies found outperformance of Ethical Investment over their conventional match (Cortez et al. (2009), Ghisetti and Rennings (2014)) while others find similar performance (Schröder (2003), Kreander et al. (2005), Lobe and Walkshausl (2014)).
For China, also not much research has been done. However, there are results indicating that ethical behaviour has a positive impact on the financial performance (Honghui and Xiayang (2011), Cheng et al. (2016) but there are also studies indicating that it has a negative impact (Zhang (2014))

As the results for the impact of ethical behaviour on the financial performance vary largely and are even contradictory, it is important to find out whether the country has an impact on this effect, how sensitive the results are and if it varies between the countries. Therefore, the following hypothesis are developed:

Hypothesis H1: The ethical scores have different effects on investment returns in the USA, Germany, and China

Hypothesis H2: The Ethical Score sensitivity of the return differs amongst the USA, Germany, and China.

This chapter elaborates the impact of ethical behaviour on the financial performance with regards to the country by using descriptive statistics, sensitivity analysis, an OLS-regression as well as a Kruskal-Wallis Test.

5.1 Research Methodology

In order to evaluate the impact of the ethical scores in different countries on the return, a three-step analysis has been applied. First, a descriptive statistical analysis on the Positive, Negative and Ethical Score has been done. Second, a sensitivity analysis has been undertaken and third, an OLS-regression has been performed.

5.1.1. Sample

Country

The reasons for the chosen countries are the same as in previous chapters. The countries with the highest GDP from Europe, America and Asia-Pacific have been selected which are the USA, Germany, and China.

Company

The aim of the company selection is to cover a representable amount of the equity market. The threshold is set to cover at least 85% of the equity universe as it covers the large and mid-cap segments of the market. Therefore, the iShares MSCI ETF of the respective country is chosen which covers 85% of the equity universe.
Furthermore, to get a large enough sample the Top 100 largest companies by market capitalisation are included as well. The Top 100 are overlapping with the iShares MSCI country index ETF.
Companies must have been active for the entire period of the study
Companies must have been active for the entire period of the study and have to had their IPO prior to the beginning of the sample period or are otherwise excluded.

The iShares MSCI USA ETF includes 157 companies that completely overlap with the Top 100 companies. Reduced by the companies that do not cover the whole sample period, a sample of 143 companies for the USA is created.

In Germany, the iShares MSCI German Index ETF includes 70 holdings. Additionally, the top 100 biggest companies are included, which results excluding overlap, into 142 companies. Reduced by the sample period covering, 122 companies in total in Germany are examined.

The iShares MSCI CHINA ETF includes 309 holdings. Companies that are not listed since the sample period are again excluded. This results into 105 companies for screening. In addition, the top 100 biggest companies are added, resulting, excluding overlap, into 163 companies. Reduced by the companies that do not cover the whole sample period, a sample of 111 companies is chosen.

All financial data has been obtained manually from publicly available sources, namely

Annual Reports of each company, stock exchange data from NASDAQ, DAX, and SSE as well as online websites yahoo finance, macrotrends.net, go.guidants.com, and gurufocus.com.

Time Frame

Data collection starts in 2018. To achieve a long-term analysis, which normally covers a 10 year period, the start date of collection should be 2007. But due to the financial crisis '07/'08 and its effects, the start date is 01/01/2010. An important justification for choosing this time frame is, that this will erase errors which might have occurred due to the distortion from the crisis.

The start date is the 01/01/2010 and the end date is the 31/12/2017.

5.1.2 Sensitivity Analysis

The first method, the score analysis, examines the different ethical behaviour across the three countries. The second method, the regression analysis, tries to give further insight in the link between all the dependent and independent variables. In order to complement the first two methods, a third method has been used in order to analyse also the individual parameter.

As a third method to examine the influence of the country on the link between ethical behaviour and financial performance a sensitivity analysis has been carried out.

A Sensitivity Analysis (SA) is a financial model to "determine how different values of an independent variable affect a specific dependent variable under a given set of assumptions" (Dikov, 2020).

It studies how uncertainty in the output of a model can apportioned to different sources of uncertainty in the model input as well as the tool of scenario study of a model.

As most studies regarding ethical investment only focus on the financial return but not on the country as an input factor for the result, it is the first time (to the authors knowledge) a sensitivity analysis has been applied in order to test the influence of the country on the link between ethical investment and financial performance.

This study uses a Local Sensitivity Analysis or also called One-at-a-time variation approach (OAT) where only one factor is being varied while the others are kept at their nominal or baseline values. This approach is chosen as any changes, including model failure, observed can be ascribed to the change in one factor and therefore are closest to the methodology aim.

The sensitivity is calculated by dividing the percentage change in output by the percentage change in input.

The input is the Ethical Score (ES), whereas the output is the adjusted stock price return, measured as average Abnormal Return (aAR), Buy-and-Hold Return (BHAR), and Cumulative Abnormal Return (CAR).

$$Sensitivity = \frac{\frac{\Delta Return}{Return}}{\frac{\Delta ES}{ES}}$$

The numerator is calculated as the difference of the return in 2017 and the return in 2010 and then divided by the return in 2010. The denominator is calculated as the difference of the ethical score in 2017 and in 2010 and then divided by the ethical score in 2010.

This is done using the average Abnormal Return (aAR), Buy-and-Hold Return (BHAR), and Cumulative Abnormal Return (CAR) for all three countries.

The results indicate the percentage change.

5.1.3. Regression

To test the impact of the country on the ethical (net) score (or positive score or negative score) on the return, an OLS regression model is used. For each country, namely USA, Germany, and China, the regression is run three times using a different return metric, namely average Abnormal Return (aAR), Buy-and-Hold Return (BHAR), and Cumulative Abnormal Return (CAR).

For this analysis 376 companies have been evaluated, of 143 companies are originated in the USA, 122 from Germany, and 111 from China.

5.1.3.1. Variable Measurement and Model Specification

Dependent Variable

The dependent variable in this regression model is the return. In order to measure the financial performance of the companies the weekly adjusted share price of the companies has been selected. The stock prices used in the calculation of returns are the closing price adjusted for subsequent capital actions (Reuters, 2018). The data used is from publicly available sources, namely XETRA, NASDAQ, NYSE, SSE, and HKEX. The adjusted closing price takes factors such as dividends, stock splits, and new stock offerings into account to determine the value.

For the dependent variable, the weekly return as well as the excess/abnormal weekly return is calculated. The weekly stock performance return is calculated as following:

$$r_t = \frac{p_t}{p_{t-1}} - 1$$

where r_t = return at time t, and p_t = adjusted stock price at time t.

The excess weekly return is calculated as following:

$$r_t^e = r_t - r_f$$

where r_t = return at time t, and r_f = risk-free rate.

To assess r_f, the risk-free rate, data from the Kenneth R. French data library is used.[5] It has an extensive database that constructed risk factors for several developed years (French, 2018). The Kenneth R. French data library does not cover every country; therefore, for Germany the European data set has been used, for the USA the USA data set has been used, and for China the Asia ex Japan data set has been applied.

The Fama-French model tries to explain the variation in stock performance of publicly traded companies (Womack and Zhang, 2003) and works as an expansion of the capital asset pricing model (CAPM). The model can explain 90% of diversified portfolios' return. It is designed to capture the relation between average return and size and the relation between average return and price ratios.

[5] It has an extensive database that constructed risk factors for several developed years (French, 2018).

For this calculation the Fama-French 3 Factor model has been applied, which can explain 90% of diversified portfolios' return. It is calculated as following:

$$r_{it} - r_{ft} = a_i + b_i(r_{mt} - r_{ft}) + s_i SMB_t + h_i HML_t + e_{it}$$

where r_{it} = return on security or portfolio i for period t

r_{ft} = risk-free return

r_{mt} = return on the value-weight market portfolio

SMB_t = return on a diversified portfolio of small stocks minus the return of big stocks[6]

HML_t = difference between the returns on diversified portfolios of high and low B/M stocks

e_{it} = zero-mean residual

a_i = intercept

b_i, s_i and h_i capture variation in expected returns

To deepen the analysis results, three different metrics are used as the dependent variable. First, the average abnormal return (hereafter referred to as aAR), second the buy-and-hold abnormal return (hereafter referred to as BHAR), and third, the cumulative abnormal return (hereafter referred to as CAR).
The return was measured in three different ways, namely abnormal return, buy-and-hold return, and cumulative abnormal return.

The abnormal return or alpha is calculated as described above. It is used for the first regression.

To represent a passive investment strategy in which the investor buys the stock and holds them for certain time period regardless of the volatility, the Buy-and-Hold strategy is included as the second regression.
In this study, it has been chosen to buy the stock at the beginning of the sample period,

[6] See Fama/French, 1993, "Common Risk Factors in the Returns on Stocks and Bonds,"*Journal of Financial Economics*, for a complete description of the factor returns.

01/01/2010) and selling at the end of it (31/12/2017), representing an eight-year hold.
The BHAR is calculated as following:

$$BHAR_{i(t,T)} = \prod_{t=1}^{T}(1 + R_{i,t}) - \prod_{t=1}^{T}(1 + R_{B,t})$$

where $r_{i,t}$ = the return of the r_m i in month t

$r_{B,t}$ = the return on the matched (benchmark) portfolio in month t

$BHAR_{i(t,T)}$ = the buy-and-hold abnormal return for rm i in the period between months t and T

The cumulative abnormal return (CAR) is the sum of the average abnormal returns. The CAR for this study is the cumulation of all annual cumulative average abnormal returns. It is calculated as following:

$$CAR_i(h) = \sum_{t=1}^{h} AR_{i,t}$$

These three return metrics result into three regressions.

Independent Variable

The main independent variable is the ethical score, which is the differentiated in the positive score, the negative score, and the ethical score.

In order to add to the research gap, an own scoring system has been built by analysing all funds in the EIRIS Ethical Funds Directory to find out which approaches have been used as well as which positive and negative screens are the most used. To depict a scoring system that represents the market, a 5% threshold is applied. This means that a factor has to be in at least 5% of all funds to be included in the ethical scoring system. This results in 26 negative factors and 25 positive factors. All factors are weighed equally. With these factors, every company will be screened to find out their positive score, negative score, and the difference of both, which is defined as the ethical score.

Each of the companies is screened using the ethical score system. This gives every company a positive screening score (PS), a negative screening score (NS) as well as the difference of both, resulting into the final ethical score (ES).

This procedure is done twice, once at the beginning of the sample period (2010) and at the end (2017).

Control Variable

For the control variables, three different variables have been selected that show an impact on the return based on a review of other studies.
These control variables cover revenue, profit margin, and debt-to-equity.
LOG Revenue 2010: revenue data is used as of 31/12 of each year and is further logarithmised and is measured in the currency of the country.
PM Aver: The Averaged Profit Margin is calculated as net income divided by revenue expressed as a percentage and then averaged over the whole period.
DtE: The Debt-to-Equity Ratio is calculated by dividing a company's total liabilities by its shareholder equity.

All data was collected from publicly available sources, namely Annual Reports of each company, stock exchange data from NASDAQ, DAX, and SSE as well as online websites yahoo finance, macrotrends.net, go.guidants.com, and gurufocus.com.

Dummy Variable

In order to detect any influences of the industry they are numbered. The industries are given a number for the inclusion in the regression, namely consumer discretionary "1", consumer staples "2", energy "3", financials "4", health care "5", industrials "6", information technology "7", telecommunication "8", and utility "9".
When analysing all three countries combined, the countries are differentiated using a dummy variable COUNTRY that takes the value 1 if the country is the USA, value 2 if the country is Germany, and value 3 if the country is China.

5.1.3.2. Empirical Model

In a meta-study carried out by Wallis and Klein (2015), they examined 53 different empirical studies regarding SRI. The majority of studies, 43 out of 53 studies, used a regression analysis.

Regression analysis offers to find explanatory contribution on different factors that influence return, which is the aim of this thesis (Shlomea, 2009). The emphasis is put on the impact of the ethical score on the return.

This is why this study is also using a regression analysis.

The regression is modelled as following:

$$\text{Return} = \text{intercept} + \beta_1 * \text{score} + \beta_2 * \text{LOG revenue 2010} + \beta_3 * \text{average profit margin} + \beta_4 * \text{debt-to-equity 2010} + \beta_5 * \text{industry} + \text{error}$$

Where

Return	is measured in three different ways: average abnormal return (aAR), buy-and-hold return (BHAR), and cumulative abnormal return (CAR)
Score	is measured in three different ways: as the Ethical Score (ES), which is the difference between the positive score and the negative score, the Positive Score (PS), and the Negative Score (NS)

In the regression model, return is defined as the Ethical/Positive/Negative Score in the year 2010; the LOG revenue of the year 2010; The Averaged Profit Margin is calculated as net income divided by revenue expressed as a percentage and then averaged over the whole period (2010-2017); the debt-to-equity ratio in 2010 is calculated by dividing a company's total liabilities by its shareholder equity; industry – in order to detect any influences of the industry they are numbered. The industries are given a number for the inclusion in the regression, namely consumer discretionary "1", consumer staples "2", energy "3", financials "4", health care "5", industrials "6", information technology "7", telecommunication "8", and utility "9".

The return is measured (as previously mentioned) in three different ways, namely average abnormal return, buy-and-hold return, and cumulative return.

5.2. Empirical Results

5.2.1 Score Analysis

For each country as well as for all countries combined a descriptive statistical analysis has been undertaken. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated. Each figure is rounded to two decimal places. For the USA 154 companies have been analysed, for Germany 142, for China 142, resulting in 438 companies in total.
Further, a Kruskal-Wallis-test has been done to test the mean differences among the three countries.

5.2.1.1 Descriptive Statistical Analysis

Descriptive statistical analysis has been done separately for the USA, Germany, and China as well as a combined analysis.

USA

As seen in table 14, the average PS in 2010 was 10.65, with an average NS of 1.6, and an average ES of 9.05. Over an eight year period, in 2017, the average PS increased by 2.82 points while the NS only increased by 0.07 points. The higher growth in PS results in an increased average ES of 11.81. The same can be found when using the Median. The PS increased by 3.5 points while the NS remained on the same level at 1. Thus, resulting in an increase of the ES of 4 points.
When looking at the minimum and maximum of the scores, it can be seen that the minimum PS increased by 1 point, while the NS remains the same at 0. The minimum ES grew from -3 to 0. The maximum rose for PS also by one point from 18 to 19, while the NS remained the same at 9. The maximum ES increased by one point from 17 to 18. This indicates that over the period of eight years, the ethical behaviour of the 154 companies mainly increased while the negative ethical behaviour diminished or remained similar. This is also supported by a scaled down standard deviation for PS and ES while the mean increased. Furthermore, the negative skewness increased for PS and ES supporting the results. Additionally, the kurtosis of NS remained similar and positive while the kurtosis for PS and ES was negative in 2010 indicating a less extreme outlier character while it turned positive for 2017 portending more extreme data. A positive kurtosis with a negative skewness for ES therefore suggests that there are more extreme positive scores.

The companies in the USA are tending to integrate more positive ethical behaviour while remaining at a similar level regarding the negative ethical behaviour.

Table 14 - Descriptive Score Analysis for USA

	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	10.65	1.60	9.05	13.47	1.67	11.81
Median	11.50	1	9	15	1	13
Minimum	1	0	-3	2	0	0
Maximum	18	9	17	19	9	18
Amplitude	17	9	20	17	9	18
Standard Deviation	4.47	1.81	4.46	3.35	1.81	3.61
Skewness	-0.47	1.59	-0.32	-1.58	1.57	-1.13
Kurtosis	-0.92	3.02	-0.84	2.31	2.94	0.79
No of observations	154	154	154	154	154	154

Table 14 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 in the USA. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

The development of the mean, median, and standard deviation for the scores in the USA is illustrated in the figure 7 below.

Figure 7 - Development of mean, median, and standard deviation for scores in USA

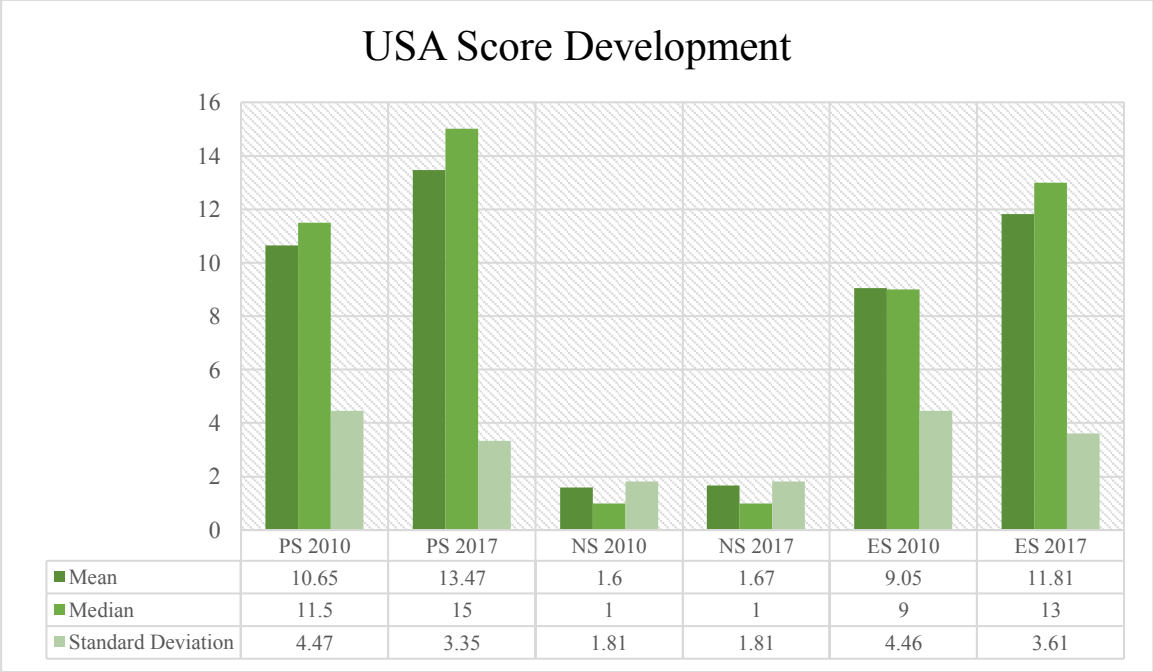


Figure 7 illustrates the standard deviation, median and mean for the Positive, Negative, and Ethical Score in 2010 and 2017 for the USA.

Germany

Germany shows a similar picture. The average PS rose from 9.27 in 2010 by 2.59 points to 11.87 in 2017, slightly less than the USA. The NS rose by 0.07 points from 0.52 to 0.59. The same growth as the USA. The ES rose by 2.52 points from 8.75 to 11.27, again slightly less growth than the USA. The median PS and ES rose by 3 points while the NS remains at the same level at 0 points. The minimum PS and ES are 1, while the minimum NS is 1, both in 2010 and 2017. The maximum is also the same in 2010 and 2017, with a maximum PS and ES of 17 and a maximum NS of 6.

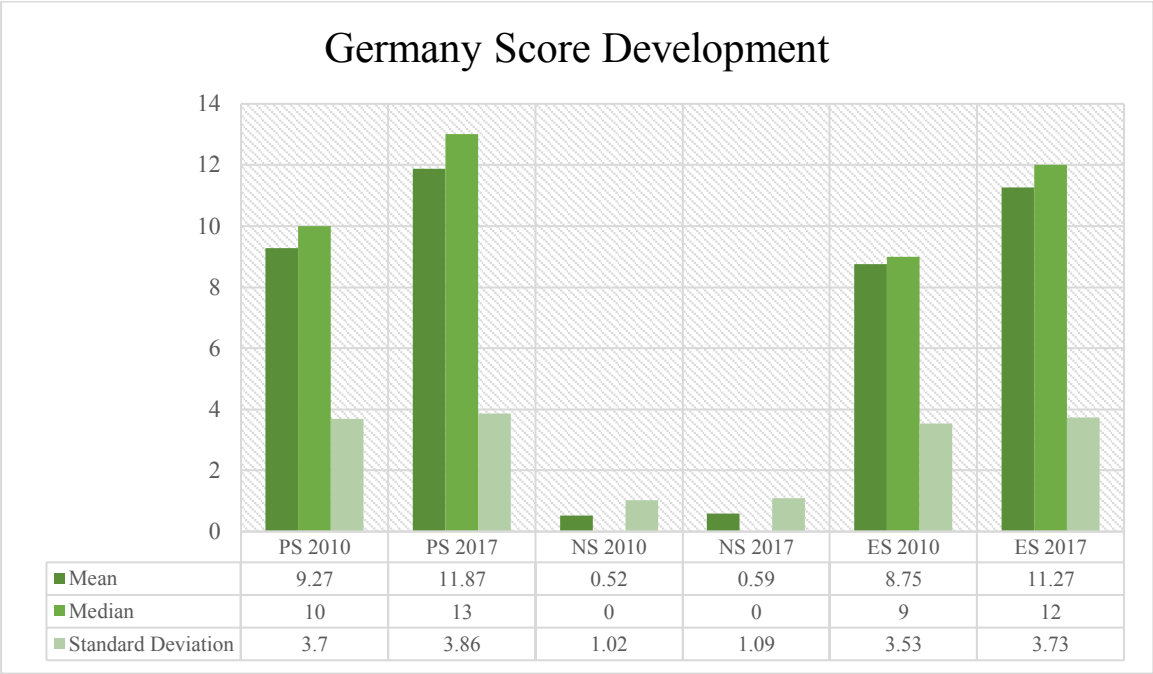
In contrast to the USA, the standard deviation rose for all three scores indicating that the data points are more spread out than before. The kurtosis of the data suggests that the NS has more outliners which reduce over time. The PS and ES show fewer extreme outliners, having a negative kurtosis that decreases over time and approaches zero.

Table 15 - Descriptive Score Analysis for Germany

	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	9.27	0.52	8.75	11.87	0.59	11.27
Median	10.00	0.00	9.00	13.00	0.00	12.00
Minimum	1	0	1	1	0	1
Maximum	17	6	17	17	6	17
Amplitude	16	6	16	16	6	16
Standard Deviation	3.70	1.02	3.53	3.86	1.09	3.73
Skewness	-0.15	2.73	-0.11	-0.84	2.36	-0.73
Kurtosis	-0.76	8.89	-0.76	-0.13	6.21	-0.24
No of observations	142	142	142	142	142	142

Table 15 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 in Germany. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Figure 8 - Development of mean, median, and standard deviation for scores in Germany



	PS 2010	PS 2017	NS 2010	NS 2017	ES 2010	ES 2017
Mean	9.27	11.87	0.52	0.59	8.75	11.27
Median	10	13	0	0	9	12
Standard Deviation	3.7	3.86	1.02	1.09	3.53	3.73

Figure 8 illustrates the standard deviation, median and mean for the Positive, Negative, and Ethical Score in 2010 and 2017 for Germany.

China

China joins the same direction like the USA and Germany. It increases its positive ethical performance while the negative almost remains the same. China has the biggest growth for PS and ES and the lowest for NS. The average PS increased by 3.35 points from 6.88 to 10.23, while the average ES increased by 3.34 points from 6.17 to 9.51. The NS almost remains the same only increasing by 0.02 points to 0.73. The median shows a similar growth. The PS rose by 4.5 to 11 points, the ES by 4 points to 10, while the NS remains the same at 1.
The minimum is the same except for ES, where it increases by 1 point from -1 in 2010 to 1 in 2017. The maximum shows only an increase for PS and ES by two points from 16 to 18 and 15 to 17, while the NS remains the same at 7. This supports the idea that the ethical behaviour of the companies improves while the negative ethical behaviour remains on the same level.
The standard deviation rises for all three, similar to Germany and contrasting to the USA.
The skewness is positive for all three scores in 2010, while for PS and ES they are almost zero. Both turn negative in 2017. The skewness of PS and ES is negative, both in 2010 and 2017, indicating less outliners while the NS is positive and high for both 2010 and 2017. This is similar to Germany.

Table 16 - Descriptive Score Analysis for China

	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	6.88	0.71	6.17	10.23	0.73	9.51
Median	6.50	1.00	6.00	11.00	1.00	10.00
Minimum	0	0	-1	0	0	0
Maximum	16	7	15	18	7	17
Amplitude	16	7	16	18	7	17
Standard Deviation	3.91	0.98	3.77	4.35	0.99	4.30
Skewness	0.18	2.77	0.17	-0.57	2.71	-0.50
Kurtosis	-0.67	12.62	-0.67	-0.46	11.95	-0.53
No of observations	142	142	142	142	142	142

Table 16 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 in China. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Figure 9 - Development of mean, median, and standard deviation for scores in China

Figure 9 illustrates the standard deviation, median and mean for the Positive, Negative, and Ethical Score in 2010 and 2017 for China.

Combined

When looking at all 438 companies combined, the results show a conclusive picture. The average PS grows by 2.92 from 8.98 in 2010 to 11.90 in 2017, the ES grows by 2.87 to 10.89 in 2017, while the NS only increases by 0.05 points to 1.01. For the median, the results

are similar. The PS and ES rose by four points to 13 and 12 respectively, while the NS only grew by one point.

The minimum for PS and NS is the same for 2010 and 2017 at zero, while for ES it increases from -3 to zero in 2017. The maximum increases by one point for PS and ES to 19 and 18 respectively, while the maximum for NS remains the same at 9.

Interestingly, the standard deviation decreases for PS and ES, while increasing slightly for NS, indicating more reliable data for ES and PS over time.

The skewness for PS and ES is negative both in 2010 and 2017, but increases over time; indicating a tilt towards more positive scores. The skewness of NS is positive in 2010 and 2017 but decreases indicating that there are fewer negative scores.

The kurtosis is negative for PS and ES in 2010 indicating fewer outliners while it turns positive for PS in 2017. The kurtosis for NS is positive in 2010 and 2017 but slightly decreases. This portends fewer extreme outliers over time.

In summary, it can be found that the PS and ES increases over time with a lower standard deviation while the NS remains on a similar level.

Table 17 - Descriptive Score Analysis for all three countries combined

	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	8.98	0.96	8.02	11.90	1.01	10.89
Median	9.00	0.00	8.00	13.00	1.00	12.00
Minimum	0	0	-3	0	0	0
Maximum	18	9	17	19	9	18
Amplitude	18	9	20	19	9	18
Standard Deviation	4.34	1.43	4.16	4.09	1.44	4.01
Skewness	-0.09	2.31	-0.07	-0.94	2.20	-0.80
Kurtosis	-0.94	6.87	-0.82	0.12	6.23	-0.09
No of observations	438	438	438	438	438	438

Table 17 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 for all USA, Germany, and China combined. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Comparison

When comparing all three countries, it is visible that the USA has the highest mean and median for PS and ES but also the highest NS. It has the highest minimum for PS but lowest for ES, and the highest maximum for PS and ES but also the highest maximum for NS. Germany is in the middle between China and the USA with the highest median NS for 2010 and 2017 and ES for 2010, the highest minimum for PS (only for 2010) and ES (for 2010 and 2017) and the highest maximum for NS in 2010 and 2017 and highest maximum ES in 2010. China, however, has the lowest mean and median for PS and ES as well as the lowest minimum for PS and ES (in 2017). Furthermore, it has the lowest maximum for PS in 2010 and lowest ES in 2010 and 2017.

This could indicate that the US is more tilted towards extremer ends, as it has the highest positive score and the highest negative score. However, the ethical score is the overall highest, it shows that the US has the best overall ethical behaviour amongst those three countries.

Germany, however, seems to have a more balanced approach, as it does have the lowest negative score and the middle positive score. Possibly, the corporate culture castigates unethical behaviour the most of these three countries.

China has the lowest positive and ethical score and the middle negative score. This might indicate that the Chinese corporate culture might not be inclined to put emphasis on ethical behaviour.

When comparing the growth of the scores, the average growth of all combined was 2.92 for the PS, 0.05 for NS, and 2.87 for ES. Interestingly, China has the highest growth rate for PS and ES (3.35 and 3.34 respectively) and the lowest for NS (0.01). This might be an indicator that China is catching up on the ethical behaviour and increases its ethical behaviour and reduces its unethical. The growth of the median supports this hypothesis.

The USA and Germany show similar growth rates. The USA, however, has a higher growth rate for PS and ES, supporting the idea that it is tilted more towards the extremes, but a lower growth rate for NS than Germany. The median growth shows the same results.

In summary, when analysing the scores of the three different countries, it can be found that in general there is a growth in ethical behaviour in all three countries while the unethical behaviour increases only slightly. The USA has the highest overall scores for PS and ES but

also the highest for NS indicating that is has the best ethical behaviour amongst the three countries. Germany shows the lowest growth rate between the three but has the lowest overall NS and the middle score for PS and ES. This shows that Germany seems to have a more balanced approach. As China has the lowest PS and ES and the middle score for NS shows that ethical behaviour might not have been the highest priority in the Chinese corporate culture. However, the highest growth rate in PS and ES and the lowest in NS could be an indicator for a more recent emphasis on the topic.

5.2.1.2 Kruskal-Wallis-Test

In order to test the mean differences among the three scores, a Kruskal-Wallis-Test has been done. As seen in table 18 below, there is a significant difference in the mean of the positive scores, negative scores, as well as ethical scores between the countries.

Table 18 – Kruskal-Wallis-Test Results

	test statistic	critical value	reject H0
PS 2010	54.69	5.99	yes
PS 2017	50.8	5.99	yes
NS 2010	217.5	5.99	yes
NS 2017	44.21	5.99	yes
ES 2010	41.08	5.99	yes
ES 2017	25.49	5.99	yes

Table 18 shows the results of the Kruskal-Wallis-Test which has been undertaken for all three countries combined. The test statistic, critical value, and whether the Nullhypothesis is rejected for the Positive, Negative, and Ethical Score for 2010 and 2017 are presented.

The Kruskal-Wallis-Test confirms the results of the descriptive statistical analysis and shows significant differences between the countries. This is an important finding as it might be one of the reasons for differing results in literature regarding ethical behaviour and financial performance.

To further test the impact of Ethical Behaviour on financial performance with regards to its country, a sensitivity analysis has been done as well.

5.2.2 Sensitivity Analysis

A Sensitivity Analysis is a "tool used in financial modelling to analyse how the different values of a set of independent variables affect a specific dependent variable […]" (Corporate Finance Institute, 2020). In this thesis, the Ethical Score is the independent variable, while the return measured in three different ways is the dependent variable.

This study undertakes for each country as well as all three countries combined a sensitivity analysis in order to examine the ethical-score sensitivity of the return, measured as AR, BHAR, and CAR, with regards to the ethical score.

As visible in table 19, for each country the sensitivity has a different sign indicating that the country has a significant influence on the link between Ethical Score and Return.

Table 19 - Sensitivity Analysis Results

	Average Abnormal Return	Buy-and-Hold Return	Cumulative Abnormal Return
USA	-2.1974	-1.7824	-3.0650
Germany	3.6485	0.2061	5.6710
China	4.0853	-5.0299	3.7341
Combined	1.5639	-2.0493	1.8108

Table 19 shows the results of the Sensitivity Analysis. The Sensitivity Analysis has been undertaken for USA, Germany, and China separately as well as all three countries combined. As the return metric, abnormal return, buy-and-hold return, and cumulative abnormal return have been used.

For the USA, all three signs are negative. The highest negative sensitivity is found for CAR with -3.0650, the second highest for aAR with -2.1974, and the third highest for BHAR with -1.7824. This means that when the ethical score increases by one percent point, the cumulative abnormal return decreases by 306.50%, the buy-and-hold return decreases by 178.24%, and the abnormal return decreases by 219.74%. It can be concluded, that in the USA an increasing ethical score is associated with a decrease in return.

In contrast to the USA, Germany shows all three positive signs for its sensitivity. The highest sensitivity is also found for the cumulative abnormal return with 5.6710, the second highest also for the abnormal return with 3.6485, and the third highest for buy-and-hold return with 0.2061. For a one point increase in the ethical score, the return is increasing as well. Using the CAR, the return increases by 567.10%, using the aAR an increase by 264.85% can be expected and when using the BHAR a smaller increase of 20.61%. For Germany, regardless of the return metric used, the return increases with an increasing Ethical Score.

In China, the results are not as homogeneous as for the USA and Germany. When using the average Abnormal Return and the Cumulative Abnormal Return, the sign for the sensitivity is positive. Implicating that with a one point increase in the Ethical Score, the return increases by 408.53% using aAR or 373.41% using CAR. However, when using BHAR the sensitivity sign is negative. This indicates a decrease in return with an increase in the Ethical Score. These mixed results show an inconclusive picture that needs further investigation.
Interestingly, the same can be found when looking at the sensitivity analysis results for all three countries combined. The Abnormal Return and the Cumulative Abnormal Return have positive sensitivity signs with 1.5639 for aAR and 1.8108 for CAR. However, the sign for sensitivity when using BHAR is negative (-2.0493). With an increase in the ethical score, the return, when using aAR and CAR, increases as well; however, decreases when using BHAR. In this study, the BHAR is calculated over the period starting from 01/01/2010 to 31/12/2017, where the stock is held over the eight year period. The sample period for AR and CAR is the same, but calculated on a weekly basis. A reason for the differing results of AR and CAR vs BHAR might be that the BHAR does not include the gradual changes whereas the other two return metrics do. Therefore, over the sample period the start date adjusted stock price and the end date adjusted stock price might not differ as much as the gradual development within the period.
It also needs to be mentioned, that the sensitivity score in the USA has the lowest amplitude whereas Germany has the highest when all signs are the same. If signs differ with regards to the return metric, China has the highest amplitude.

In summary, the USA and Germany both show very clear results for the sensitivity analysis. The USA has a negative sensitivity sign regardless of the return metric meaning that with an increase in the Ethical Score a declining return appears. The opposite occurs for Germany, where an increase in the Ethical Score results in an increasing return regardless of the return metric.
For China and all three countries combined, aAR and CAR show positive sensitivity signs, whereas using BHAR the sensitivity sign is negative. This implies that with an increasing Ethical Score the return, using aAR and CAR, increases as well but decreases when using BHAR.
Therefore, the country that a company is in does have an influence on the relationship between the ethical score and the financial performance. In the USA an increasing Ethical behaviour leads to lower return, whereas in Germany it leads to a higher return. For China and

Combined, it depends on the return metric. But for the return metrics that include gradual change an increasing ethical behaviour is also associated with higher returns.

5.2.3. Regression Analysis

For each country, namely the USA, Germany, China, and the three combined a regression has been run using the ethical score (ES), the positive score (PS), and the negative score (NS), as well as three return metrics, namely aAbnormal Return (aAR), Buy-and-Hold Return (BHAR), and Cumulative Abnormal Return (CAR). All three scores (ES, PS, and NS) are being examined in order to be able to differentiate between influences of positive ethical behaviour, negative ethical behaviour, or the difference of both, namely the Ethical Score. The results can be found in table 20 below and are further elaborated on in this chapter.

Table 20 - Regression results for all countries

		USA		**GER**		**CHI**		**COM**	
		Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Average	Intercept	25.8837***	0.0000	4.4178***	0.0000	4.8087***	0.0000	7.7423***	0.0001
Abnormal	ES	-0.2711	0.2043	-0.0267	0.6878	-0.1764**	0.0354	-0.2039*	0.0588
Return									
	LOG Revenue	-9.8837***	0.0000	-0.6342***	0.0044	-1.2001***	0.0019	-1.7837***	0.0004
	PM Aver	-16.0028***	0.0065	0.0169	0.4963	-1.0689	0.3125	-0.0321	0.6954
	DtE	-0.6319**	0.0122	-0.2976	0.2215	-0.0908	0.6365	-0.5080**	0.0011
	Industry	-1.0006**	0.0221	-0.0461	0.6243	0.2548**	0.0443	-0.2403	0.1863
	Country							**0.2275**	**0.7101**
	R^2	0.3066		0.1415		0.1830		0.1067	
	F-Score	12.1155		3.7913		4.7475		7.3464	
	Significance F	0.0000		0.0032		0.0006		0.0000	
	Intercept	26.2087***	0.0000	4.4323***	0.0000	5.1042***	0.0000	8.4843***	0.0000
	PS	-0.3173	0.1588	-0.0277	0.6904	-0.2154***	0.0070	-0.2539**	0.0198
	LOG Revenue	-9.4002***	0.0000	-0.6209***	0.0102	-1.1249***	0.0033	-1.5592***	0.0032
	PM Aver	-16.3238***	0.0055	0.0167	0.5022	-1.1093	0.2847	-0.0390	0.6345
	DtE	-0.6498***	0.0103	-0.2984	0.2211	-0.0773	0.6837	-0.5064***	0.0011
	Industry	-0.9892**	0.0234	-0.0448	0.6329	0.2578**	0.0385	-0.2407	0.1845
	Country							**0.0852**	**0.8903**
	R^2	0.3085		0.1415		0.2047		0.1112	
	F-Score	12.2241		3.7906		5.4562		7.6950	
	Significance F	0.0000		0.0033		0.0002		0.0000	
	Intercept	23.9907***	0.0000	4.1551***	0.0000	4.5272***	0.0000	5.8006***	0.0002
	NS	-0.0953	0.8646	0.0138	0.9481	-0.2904	0.3463	-0.3559	0.2438
	LOG Revenue	-10.3616***	0.0000	-0.6854***	0.0012	-1.3717***	0.0004	-1.9362***	0.0001
	PM Aver	-16.2106***	0.0064	0.0177	0.4756	-1.5393	0.1498	-0.0345	0.6761
	DtE	-0.6044**	0.0170	-0.2784	0.2436	-0.1204	0.5367	-0.4926***	0.0015
	Industry	-0.9690**	0.0276	-0.0426	0.6510	0.1968	0.1229	-0.2396	0.1888
	Country							**0.6074**	**0.2882**
	R^2	0.2985		0.1403		0.1551		0.1013	
	F-Score	11.6601		3.7545		3.8910		6.9345	
	Significance F	0.0000		0.0035		0.0028		0.0000	
Buy-and-Hold	Intercept	46.0393***	0.0000	4.6134**	0.0386	6.6432**	0.0395	11.7935***	0.0092
Return	ES	-0.1508	0.7040	-0.1401	0.4158	-0.4341	0.1688	-0.0006	0.9980
	LOG Revenue	-10.1167***	0.0025	-1.3118**	0.0216	-1.7107	0.2333	0.2580	0.8248
	PM Aver	-4.9187	0.6494	0.0258	0.6872	3.9158	0.3292	-0.3312*	0.0826
	DtE	-0.4757	0.3067	-0.2233	0.7217	-0.3335	0.6481	1.0161***	0.0047
	Industry	-0.6503	0.4210	0.2047	0.3999	0.2582	0.5981	0.0133	0.9750
	Country							**-0.3360**	**0.8138**
	R^2	0.0880		0.1103		0.0559		0.0336	
	F-Score	2.6429		2.8513		1.2317		2.1249	

	Significance F	0.0258		0.0183		0.2996		0.0498	
	Intercept	47.4159***	0.0000	4.8563**	0.0358	7.2917**	0.0266	10.9698**	0.0184
	PS	-0.3475	0.4061	-0.1619	0.3676	-0.5088*	0.0922	0.0701	0.7803
	LOG Revenue	-9.2676***	0.0084	-1.2064*	0.0516	-1.5541	0.2787	0.0987	0.9357
	PM Aver	-5.2130	0.6293	0.0241	0.7063	3.8003	0.3380	-0.3279*	0.0861
	DtE	-0.5123	0.2726	-0.2398	0.7024	-0.3098	0.6702	1.0184***	0.0046
	Industry	-0.6522	0.4182	0.2097	0.3868	0.2598	0.5926	0.0131	0.9754
	Country							**-0.1751**	**0.9035**
	R^2	0.0916		0.1115		0.0645		0.0338	
	F-Score	2.7633		2.8849		1.4332		2.1383	
	Significance F	0.0207		0.0172		0.2185		0.0484	
	Intercept	44.9943***	0.0000	3.2665**	0.0261	4.0381	0.2127	10.9948***	0.0026
	NS	-1.0979	0.2879	-0.0834	0.8788	1.4642	0.2073	1.0097	0.1522
	LOG Revenue	-9.1228***	0.0081	-1.5142***	0.0056	-2.4549*	0.0801	-0.2963	0.7964
	PM Aver	-6.1506	0.5703	0.0290	0.6505	3.4306	0.3881	-0.3092	0.1050
	DtE	-0.5021	0.2786	-0.1238	0.8408	-0.4333	0.5524	1.0012***	0.0052
	Industry	-0.5801	0.4715	0.2309	0.3442	0.2254	0.6440	0.0144	0.9729
	Country							**-0.1884**	**0.8870**
	R^2	0.0945		0.1053		0.0531		0.0390	
	F-Score	2.8604		2.7073		1.1673		2.4799	
	Significance F	0.0173		0.0237		0.3303		0.0230	
Cumulative	Intercept	11.7807***	0.0001	209.6370***	0.0000	2.4167***	0.0000	174.0175***	0.0000
Abnormal	ES	-0.2662	0.1089	-4.1489	0.1615	-0.0650**	0.0408	-1.2036	0.1419
Return	LOG Revenue	-3.3562**	0.0155	-29.1952***	0.0031	-0.6287***	0.0000	-24.0659***	0.0000
	PM Aver	-8.2210*	0.0696	1.3171	0.2318	-0.4191	0.2972	2.5503***	0.0001
	DtE	-0.2242	0.2476	-10.3074	0.3392	-0.0369	0.6145	-2.7365**	0.0199
	Industry	-0.5234	0.1211	-9.5339**	0.0238	0.0692	0.1600	-2.5740*	0.0656
	Country							**-45.9556****	**0.0000**
	R^2	0.1201		0.2198		0.2423		0.4681	
	F-Score	3.7383		6.4786		6.6517		53.8259	
	Significance F	0.0033		0.0000		0.0000		0.0000	
	Intercept	12.0473***	0.0001	219.7315***	0.0000	2.5282***	0.0000	180.9743***	0.0000
	PS	-0.3040*	0.0823	-5.0874*	0.0997	-0.0800***	0.0083	-1.7216**	0.0367
	LOG Revenue	-2.9069**	0.0462	-25.4555**	0.0170	-0.6002***	0.0000	-22.2348***	0.0000
	PM Aver	-8.5310*	0.0595	1.2592	0.2521	-0.4304	0.2748	2.4998***	0.0001
	DtE	-0.2407	0.2161	-11.0083	0.3069	-0.0325	0.6526	-2.7326**	0.0197
	Industry	-0.5118	0.1285	-9.4169**	0.0246	0.0703	0.1464	-2.5647*	0.0657
	Country							**-47.3303****	**0.0000**
	R^2	0.1229		0.2249		0.2624		0.4713	
	F-Score	3.8406		6.6722		7.3983		54.5205	
	Significance F	0.0027		0.0000		0.0000		0.0000	
	Intercept	9.9218***	0.0003	170.2520***	0.0000	2.3154***	0.0000	163.9943***	0.0000
	NS	-0.0477	0.9126	-5.1706	0.5839	-0.1037	0.3789	-3.9174*	0.0908
	LOG Revenue	-3.8806***	0.0076	-34.0530***	0.0004	-0.6915***	0.0000	-23.9715***	0.0000
	PM Aver	-8.3761*	0.0685	1.3969	0.2076	-0.5910	0.1450	2.4967***	0.0001
	DtE	-0.1954	0.3174	-7.3775	0.4882	-0.0487	0.5113	-2.6195**	0.0256
	Industry	-0.4947	0.1467	-8.6179**	0.0422	0.0462	0.3522	-2.5738*	0.0653
	Country							**-43.9798****	**0.0000**
	R^2	0.1034		0.2084		0.2169		0.4691	
	F-Score	3.1601		6.0542		5.7619		54.0465	
	Significance F	0.0099		0.0001		0.0001		0.0000	

Table 20 gives an overview of the regression results for all countries. All regressions are run for each country, namely USA, Germany, and China separately, as well as all three countries combined. The independent variables are the return. For each return metric, a separate regression is undertaken. Three return metrics have been used: average abnormal return, buy-and-hold return, cumulative abnormal return. The independent variables are defined as follows: the logarithmised revenue [in bn$] (logRevenue), the average Profit Margin (PM Aver), the Debt-to-Equity Ratio (Debt-to-Equity) as well as the industry as a dummy variable and country for the combined regression. Another independent variable is the Score. For each, the Ethical Score, Positive Score and Negative Score the regression are run separately.
*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

5.2.3.1. USA

When using the average Abnormal Return (aAR) as the return metric in the USA, it is visible that for all three scores, the Revenue (Rev), the Profit Margin (PM), the Debt-to-Equity (DtE), and the industry (Ind) are statistically significant, either on a 1% or on a 5% level. The ES, PS, and NS are all around zero but are statistically insignificant indicating that the ethical behaviour does not have any influence on the financial performance.

When using the Buy-and-Hold Return (BHAR), only the revenue is statistically significant on a 1% level. The negative coefficient indicates that the smaller the company the higher the financial performance. The ethical behaviour, however, is again statistically insignificant.

Using the Cumulative Abnormal Return (CAR) as the return metric, the Revenue and the Profit Margin are always statistically significant and negative and for the Positive Score (PS) the coefficient is statistically significant (-0.3040). This implies that positive ethical behaviour has an almost close to zero but slightly negative impact on the financial performance.

The negative coefficient for the revenue supports the results from the BHAR return metric implying that the smaller the company the better the financial performance.

5.2.3.2. Germany

For Germany using the AR also the revenue is statistically significant on a 1% level. The coefficient is slightly negative but close to zero (AR_ES: -0.6342, AR_PS: -0.6209, AR_NS: -0.6854) implying a smaller company is linked to higher financial performance.

The ethical behaviour is statistically insignificant.

When using the BHAR, again the revenue is statistically significant on a 1% level for NS, 5% level for ES, and a 10% level for PS. The coefficient is negative supporting the previous results.

When using CAR as the return metric, the revenue has a negative coefficient and is significant on a 1% and 5% level. The industry is also significant for all three ethical scores (ES, PS, and NS) with a negative coefficient. This implies that the industry where the company is in is statically significant on a 5% level. As it is a dummy variable[7], the negative coefficient has no informative value.

For CAR_PS the Positive Score is also statistically significant with a value of -5.0874. Positive ethical behaviour, therefore, has a negative impact on the financial performance in Germany using CAR as the return metric. Ethical behaviour, therefore, is penalised.

[7] consumer discretionary “1”, consumer staples “2”, energy “3”, financials “4”, health care “5”, industrials “6”, information technology “7”, telecommunication “8”, and utility “9”.

5.2.3.3. China

For China when using AR as the return metric the revenue is statistically significant on a 1% level for all three scores. The negative coefficient implies that the smaller the company the higher the financial performance. This link has also been found for the USA and Germany. Furthermore, for ES and PS the industry is statistically significant on a 5% level and the ethical score is significant on a 1% level. For ES and PS, the coefficient is negative but close to zero (AR_ES: -0.1764, AR_PS: -0.2154) indicating almost no but a slightly negative link between the ethical behaviour of a company and its financial performance.

When using the BHAR, the PS is statistically significant on a 10% level with a coefficient of -0.5088 implying almost no but a slightly negative link between the positive ethical behaviour and the financial performance of the company. Additionally, the revenue for NS is statistically significant on a 10% level with a coefficient of -2.4549 supporting the previous results of a small company advantage.

When using the CAR, the revenue is always statistically significant on a 1% level with a coefficient of -0.6287 for CAR_ES, -0.6002 for CAR_PS, and -0.6915 for CAR_NS. For CAR_ES and CAR_PS, the ethical score is statistically significant on a 5% and 1% level respectively. The coefficient is negative but close to zero for both implying that there is no to a slightly negative impact of ethical behaviour on the financial performance of the company.

5.2.3.4. Combined

The regression is also run for all three countries combined in order to see whether the country has a statistically significant influence.

When using the AR, the revenue as well as the Debt-to-Equity Ratio is statistically significant on 1% and 5% level. The revenue has a negative coefficient supporting the previous results of a small company advantage. The DtE coefficient is negative but close to zero (AR_ES: -0.5080, AR_PS: -0.5064, AR_NS: -0.4926). For ES and PS, the ethical score coefficient is also significant on a 10% level for ES (-0.2039) and 1% level for PS (-0.2539). This implies that the ethical behaviour has no to a slightly negative impact on the financial performance of the company.

Using BHAR, only the Profit Margin and the Debt-to-Equity Ratio are statistically significant. The Profit Margin is significant on a 10% level with a coefficient for ES and PS with a coefficient of -0.3312 and -0.3279. The Debt-to-Equity Ratio is significant on a 1% level with a coefficient of BHAR_ES: 1.0161, BHAR_PS: 1.0184, BHAR_NS: 1.0012.

When using the CAR as the return metric, it is interesting that all variables (except ES) are statistically significant. The PS is significant on a 5% level with a negative coefficient (-1.7216) implying that ethical behaviour is linked to a worse financial performance. However, the NS has a negative coefficient (-3.9174) indicating that negative ethical behaviour also is linked to a worse financial performance.
Furthermore, the revenue is statistically significant for all three ethical scores with a negative coefficient. The Profit Margin is also significant for all three ethical scores but with a positive coefficient suggesting that a higher Profit Margin is linked to a better financial performance. The Debt-to-Equity Ratio is also significant for all three ethical scores on a 5% level and has a negative coefficient for all three implying that the lower the Debt-to-Equity Ratio, the better the financial performance. The industry in which the companies are in also have a statistically significant influence. Interestingly, the country in which the companies are in is statistically significant on a 1% level for all three ethical scores. The coefficient is negative for all three but has no informative value.
Concluding, the country in which the companies are in has a statistically significant impact on the financial performance.

5.2.3.5 Summary

OLS-regressions have been run for all three countries, USA, Germany, and China, using three different return metrics, namely average Abnormal Return (aAR), Buy-and-Hold-Return (BHAR), and Cumulative Abnormal Return (CAR) addressing the critique of Gelerna et al. (2008). All regressions are run for each of the three scores (ES, PS, and NS) in order to detect differences.
For the USA, using aAR and BHAR as the return metric, it is found that ethical behaviour has no statistically significant impact on the financial performance. When using CAR, positive ethical behaviour has almost no but a slightly negative statistically significant impact on the financial performance.
In Germany, the ethical behaviour has also no statistically significant impact on financial performance when using aAR and BHAR. Similar to the USA, when using CAR positive ethical behaviour has a negative impact on the financial performance.
In China, regardless of the return metric, ethical behaviour has a statistically significant almost zero but slightly negative impact on the financial performance.

When all countries combined are analysed, it is found that the return metric is essential for the result: using aAR, there is almost zero to a slightly negative impact of ethical behaviour on the financial performance found. Using BHAR, no statistically significant impact is detected. But when using CAR, ethical as well as unethical behaviour is linked to a worse financial performance.
In summary, the country as well as the return metric are crucial in determining the impact of ethical behaviour on the financial performance.

5.3 Conclusion

Chapter 5 elaborates on the impact of Ethical Behaviour on the Financial Performance with regards to the country. Due to a self-developed Ethical Scoring System from Chapter 4, a transnational comparability is enabled. This study selected USA, Germany, and China as the sample countries and applied three different size measurements, namely Average Abnormal Return (aAR), Buy-and-Hold Return (BHAR), as well as Cumulative Abnormal Return (CAR) to address the gap in literature stated by Galema et al. (2008).
This study applies descriptive statistical analysis, sensitivity analysis, OLS-regression analysis and a Kruskal-Wallis test in order to detect whether the country has an impact on the results.
The descriptive statistical analysis shows that the scores vary in all three countries. The USA has the highest PS and ES and also the highest NS. Germany shows the lowest growth rate but has the overall lowest NS and middle PS and ES score. China has the highest growth rate of PS and ES indicating a catch-up of ethical performance. In summary, the scores vary throughout the countries which might be a possible explanation for varying results in literature.
The Kruskal-Wallis-Test confirms the significant differences between the countries.
The Sensitivity Analysis results further show differences between the countries: while the USA shows that with an increase in the Ethical Score a decreasing return appears, Germany shows the opposite; an increase in Ethical Score results in an increasing return. For China and the combined analysis, the results vary with the return metrics.
The OLS-regression results additionally confirm the importance of differentiation of countries in the analysis. All three countries as well as the combined analysis show different results. AR and BHAR in the USA show that ethical behaviour has no statistically significant impact on the financial performance. Using CAR shows that ethical behaviour has almost no but a

slightly negative statistically significant impact. The same was found for Germany when using CAR. However, when using AR and BHAR, ethical behaviour appears to have no statistically significant impact on financial performance. In China, regardless of the return metric, ethical behaviour has a statistically significant almost zero but slightly negative impact on the financial performance. When analysing all three countries combined, the results vary with each return metric.

In conclusion, the country as well as the return metric are statistically significant and therefore crucial in determining the impact of ethical behaviour on the financial performance. This might be one explanation for differing results in literature.

Another reason for differing results in literature might be the impact of the industry. Due to the distinctive characteristics of each industry, the nature of every industry might have an impact on the result. This is elaborated in the following chapter.

Chapter 6

Impact of Ethical Behaviour on Financial Performance: Industry matters?

6.0 Introduction

Within the recent body of literature, there is no consensus on the impact of Ethical Behaviour on Financial Performance. In Chapter 5 it is elaborated that one of the reasons for differing results might be the impact of the country which has a statistically significant impact on the analysis results.

Another, to the author's knowledge not yet researched, reason might be the industry. Due to the different nature of each industry and its possible implications for consumer behaviour, this chapter assesses the role of industries in the complex relation between ethical behaviour and financial return.

This thesis uses the iShares MSCI directory to assign each of the 376 companies to one of the nine major industries. The nine industries are: consumer discretionary (CD), consumer staples (CS), energy (EN), finance (FI), healthcare (HC), industrials (IN), information technology (IT), telecommunication (TC), and utilities (UT). Each of the industries is numbered and included as a dummy variable in the OLS-regression in order to detect statistically significance.

The OLS-regressions are run for each country and all three scores.

It is found that the industry has a statistically significant on the impact of the Ethical behaviour on the financial performance, which is a major contribution of this thesis. The findings might be a further explanation for the mixed results in the literature.

6.1 Research Methodology

6.1.1 Sample

Country

To evaluate the performance of stocks in different countries with different ethical scores, it has to be selected where the data should come from.

Most studies just concentrate on one country (or fund or index) for analysis neglecting that different countries have different ethical views and put different importance on ethical issues. Therefore, this study examines the biggest countries by GDP from each continent. Due to a lack of information and data availability Africa is excluded. For Europe, Germany is chosen,

for America, the Unites States of America are chosen, and for Asia-Pacific, China has been selected as these have the highest GDPs.
Another added value is that all these countries have a different corporate governance system. Germany has a 2-Tier system with the “Aufsichtsrat” and the “Vorstand”, the USA has a 1-Tier system, while Chines companies are highly government influenced.
Furthermore, there is a lack in research especially in Germany and China which is aimed to be filled by this research.

Company

The aim of the company selection is to cover a representable amount of the equity market. The threshold is set to cover at least 85% of the equity universe as it covers the large and mid-cap segments of the market. Therefore, the iShares MSCI ETF of the respective country is chosen which covers 85% of the equity universe.
Furthermore, to get a large enough sample the Top 100 largest companies by market capitalisation are included as well. The Top 100 are overlapping with the iShares MSCI country index ETF.
Companies must have been active for the entire period of the study
Companies must have been active for the entire period of the study and have to had their IPO prior to the beginning of the sample period or are otherwise excluded.

The iShares MSCI USA ETF includes 157 companies that completely overlap with the Top 100 companies. Reduced by the companies that do not cover the whole sample period, a sample of 143 companies for the USA is created.

In Germany, the iShares MSCI German Index ETF includes 70 holdings. Additionally, the top 100 biggest companies are included, which results excluding overlap, into 142 companies. Reduced by the sample period covering, 122 companies in total in Germany are examined.

The iShares MSCI CHINA ETF includes 309 holdings. Companies that are not listed since the sample period are again excluded. This results into 105 companies for screening. In addition, the top 100 biggest companies are added, resulting, excluding overlap, into 163 companies. Reduced by the companies that do not cover the whole sample period, a sample of 111 companies is chosen.

All financial data has been obtained manually from publicly available sources, namely Annual Reports of each company, stock exchange data from NASDAQ, DAX, and SSE as well as online websites yahoo finance, macrotrends.net, go.guidants.com, and gurufocus.com.

Time Frame

The period from 2010 is chosen as it should cover a long-term analysis, normally 10 years. But due to the financial crisis '07/'08 and its effects, the start date is 01/01/2010. An important justification for choosing this time frame is, that this will erase errors which might have occurred due to the distortion from the crisis.
The start date is the 01/01/2010 and the end date is the 31/12/2017.

6.1.2. Regression

To test the impact of the industry on the ethical (net) score (or positive score or negative score) on the return, an OLS regression model is used. For each country, namely USA, Germany, and China, the regression is run three times using a different return metric, namely Average Abnormal Return (aAR), Buy-and-Hold Return (BHAR), and Cumulative Abnormal Return (CAR).
For this analysis 376 companies have been evaluated, of 143 companies are originated in the USA, 122 from Germany, and 111 from China.

6.1.2.1. Variable Measurement and Model Specification

Dependent Variable

The dependent variable in this regression model is the return. In order to measure the financial performance of the companies the weekly adjusted share price of the companies has been selected. The stock prices used in the calculation of returns are the closing price adjusted for subsequent capital actions (Reuters, 2018). The data used is from publicly available sources, namely XETRA, NASDAQ, NYSE, SSE, and HKEX. The adjusted closing price takes factors such as dividends, stock splits, and new stock offerings into account to determine the value.

For the dependent variable, the weekly return as well as the excess/abnormal weekly return is calculated. The weekly stock performance return is calculated as following:

$$r_t = \frac{p_t}{p_{t-1}} - 1$$

where r_t = return at time t, and p_t = adjusted stock price at time t.

The excess weekly return is calculated as following:

$$r_t^e = r_t - r_f$$

where r_t = return at time t, and r_f = risk-free rate.

To assess r_f, the risk-free rate, data from the Kenneth R. French data library is used.[8] It has an extensive database that constructed risk factors for several developed years (French, 2018). The Kenneth R. French data library does not cover every country; therefore, for Germany the European data set has been used, for the USA the USA data set has been used, and for China the Asia ex Japan data set has been applied.

The Fama-French model tries to explain the variation in stock performance of publicly traded companies (Womack and Zhang, 2003) and works as an expansion of the capital asset pricing model (CAPM). The model can explain 90% of diversified portfolios' return. It is designed to capture the relation between average return and size and the relation between average return and price ratios.

For this calculation the Fama-French 3 Factor model has been applied, which can explain 90% of diversified portfolios' return. It is calculated as following:

$$r_{it} - r_{ft} = a_i + b_i(r_{mt} - r_{ft}) + s_i SMB_t + h_i HML_t + e_{it}$$

where r_{it} = return on security or portfolio i for period t

r_{ft} = risk-free return

r_{mt} = return on the value-weight market portfolio

SMB_t = return on a diversified portfolio of small stocks minus the return of big

[8] It has an extensive database that constructed risk factors for several developed years (French, 2018).

stocks[9]

HML_t = difference between the returns on diversified portfolios of high and low B/M stocks

e_{it} = zero-mean residual

a_i = intercept

b_i, s_i and h_i capture variation in expected returns

To deepen the analysis results, three different metrics are used as the dependent variable. First, the average abnormal return (hereafter referred to as aAR), second the buy-and-hold abnormal return (hereafter referred to as BHAR), and third, the cumulative abnormal return (hereafter referred to as CAR).
The return was measured in three different ways, namely abnormal return, buy-and-hold return, and cumulative abnormal return.

The abnormal return or alpha is calculated as described above. It is used for the first regression.

To represent a passive investment strategy in which the investor buys the stock and holds them for certain time period regardless of the volatility, the Buy-and-Hold strategy is included as the second regression.
In this study, it has been chosen to buy the stock at the beginning of the sample period, 01/01/2010) and selling at the end of it (31/12/2017), representing an eight-year hold.
The BHAR is calculated as following:

$$BHAR_{i(t,T)} = \prod_{t=1}^{T}\left(1 + R_{i,t}\right) - \prod_{t=1}^{T}\left(1 + R_{B,t}\right)$$

where $r_{i,t}$ = the return of the r_m i in month t

$r_{B,t}$ = the return on the matched (benchmark) portfolio in month t

$BHAR_{i(t,T)}$ = the buy-and-hold abnormal return for rm i in the period between months t and T

[9] See Fama/French, 1993, "Common Risk Factors in the Returns on Stocks and Bonds,"*Journal of Financial Economics*, for a complete description of the factor returns.

The cumulative abnormal return (CAR) is the sum of the average abnormal returns. The CAR for this study is the cumulation of all annual cumulative average abnormal returns. It is calculated as following:

$$CAR_i(h) = \sum_{t=1}^{h} AR_{i,t}$$

These three return metrics result into three regressions.

Independent Variable

The main independent variable is the ethical score, which is the differentiated in the positive score, the negative score, and the ethical score.

In order to add to the research gap, an own scoring system has been built by analysing all funds in the EIRIS Ethical Funds Directory to find out which approaches have been used as well as which positive and negative screens are the most used. To depict a scoring system that represents the market, a 5% threshold is applied. This means that a factor has to be in at least 5% of all funds to be included in the ethical scoring system. This results in 26 negative factors and 25 positive factors. All factors are weighed equally. With these factors, every company will be screened to find out their positive score, negative score, and the difference of both, which is defined as the ethical score.

Each of the companies is screened using the ethical score system. This gives every company a positive screening score (PS), a negative screening score (NS) as well as the difference of both, resulting into the final ethical score (ES).

This procedure is done twice, once at the beginning of the sample period (2010) and at the end (2017).

Control Variable

For the control variables, three different variables have been selected that show an impact on the return based on a review of other studies.

These control variables cover revenue, profit margin, and debt-to-equity.

LOG Revenue 2010: revenue data is used as of 31/12 of each year and is further logarithmised and is measured in the currency of the country.

PM Aver: The Averaged Profit Margin is calculated as net income divided by revenue expressed as a percentage and then averaged over the whole period.

DtE: The Debt-to-Equity Ratio is calculated by dividing a company's total liabilities by its shareholder equity.

All data was collected from publicly available sources, namely Annual Reports of each company, stock exchange data from NASDAQ, DAX, and SSE as well as online websites yahoo finance, macrotrends.net, go.guidants.com, and gurufocus.com.

Dummy Variable

In order to detect any influences of the industry they are numbered. The industries are given a number for the inclusion in the regression, namely consumer discretionary "1", consumer staples "2", energy "3", financials "4", health care "5", industrials "6", information technology "7", telecommunication "8", and utility "9".
When analysing all three countries combined, the countries are differentiated using a dummy variable COUNTRY that takes the value 1 if the country is the USA, value 2 if the country is Germany, and value 3 if the country is China.

6.1.2.2. Empirical Model

In a meta-study carried out by Wallis and Klein (2015), they examined 53 different empirical studies regarding SRI. The majority of studies, 43 out of 53 studies, used a regression analysis.
Regression analysis offers to find explanatory contribution on different factors that influence return, which is the aim of this thesis (Shlomea, 2009). The emphasis is put on the impact of the ethical score on the return.
This is why this study is also using a regression analysis.

The regression is modelled as following:

$$\text{Return} = \text{intercept} + \beta_1 * \text{score} + \beta_2 * \text{LOG revenue 2010} + \beta_3 * \text{average profit margin} + \beta_4 * \text{debt-to-equity 2010} + \text{error}$$

Where

Return is measured in three different ways: average abnormal return (aAR), buy-and-hold return (BHAR), and cumulative abnormal return (CAR)

Score	is measured in three different ways: as the Ethical Score (ES), which is the difference between the positive score and the negative score, the Positive Score (PS), and the Negative Score (NS)

In the regression model, return is defined as the Ethical/Positive/Negative Score in the year 2010; the LOG revenue of the year 2010; The Averaged Profit Margin is calculated as net income divided by revenue expressed as a percentage and then averaged over the whole period (2010-2017); the debt-to-equity ratio in 2010 is calculated by dividing a company's total liabilities by its shareholder equity; industry – in order to detect any influences of the industry they are numbered. The industries are given a number for the inclusion in the regression, namely consumer discretionary "1", consumer staples "2", energy "3", financials "4", health care "5", industrials "6", information technology "7", telecommunication "8", and utility "9".

The return is measured (as previously mentioned) in three different ways, namely average abnormal return, buy-and-hold return, and cumulative return.

6.2. Empirical Results and Discussion

6.2.1. Descriptive Statistics

Table 31 provides the descriptive statistics for the mean independent variable *Ethical Score* for the USA, Germany, and China within nine industries. It is found that the USA has the highest mean Ethical Score for the Consumer Discretionary industry, the Financials Industry as well as the Information Technology and all industries combined. Germany has the highest mean Ethical Score for the Consumer Staples, Energy, Health Care, Industrials, and Utilities. China, however, has the lowest mean Ethical Scores. It only has the highest mean Ethical Score for the telecommunication industry.

Further descriptive statistics for each industry can be found in the appendix in tables 58 to 66.

Table 21 - Ethical Score mean by country and industry

Industry	USA	Germany	China
Consumer Discretionary	11.6471	10.0588	6.5938
Consumer Staples	11.2778	11.7333	8.9167
Energy	11.4375	12	9.2143
Financial Industries	9.861	7.8235	6.96

Health Care	10.3816	11.7143	5.3
Industrials	10.0455	10.9615	9.0152
Information Technology	11.1258	8.0667	8.1154
Telecommunication	8.1429	7.1111	8.6
Utilities	10.2143	11.4167	8.5556
All industries combined	10.3605	9.9877	7.8866

Table 21 shows the mean Ethical Score for each country and each industry.

6.2.2 Regression Results

To test the impact of the ethical score, as well as the positive score, and negative score, on the return, an OLS regression model is used. For each of the nine industries for each of the three countries, a regression is run three times using a different return metric, namely average Abnormal Return (aAR), Buy-and-Hold Return (BHAR), and Cumulative Abnormal Return (CAR).

6.2.2.1 Consumer Discretionary

The consumer discretionary industry is defined as "companies that manufacture products and provide services that consumers purchase on a discretionary basis." (Vanguard) or as a term that is given to "goods and services that are considered non-essential by consumers, but desirable if their available income is sufficient to purchase them" (Abukhovich et al., 2017). It tends to be the most sensitive industry to economic cycles. To reduce the impact of economic cycles, this thesis excluded the time frame of the financial crisis and starts its analysis from 2010 onwards.

Regarding the impact of the ethical score on the return, it is expected that as an industry with non-essential goods, the consumer is able to buy according to his/her ethical values and screenings. As it is non-essential, the consumer can completely reject buying non-ethical goods and/or choose their ethical co-product instead as he has more opportunity to incorporate his ethical values into the purchase process. This would lead to a higher revenue and profit for the company with the higher ethical score. Therefore, this thesis hypothesises a positive impact of the ethical score on the share price return.

> H0: For consumer discretionary, the Ethical Score has no impact on the share price return.
>
> H1: For consumer discretionary, the Ethical Score has a positive impact on the share price return

As seen in table 22, within the USA, it is noticeable that the Ethical Score (ES), Positive (PS) and negative Score (NS) all have a negative and for ES and PS statistically significant using AR and BHAR while for CAR only PS, sign regardless of the return metric that is used. This cannot be found for the other countries. This result is counter-intuitive as it is expected that ES and PS have the same sign and NS has the opposing. For the USA, both ethical behaviour as well as unethical behaviour both have a negative influence on the return. As previously elaborated, a positive impact is expected.
These results leave room for further investigation and research.

In Germany, the ES and PS are negative, while the NS is positive (found for all three return metrics). It has to be mentioned that for AR and BHAR the ES and PS are negative but are close to zero (AR_ES: -0.1739*, AR_PS: -0.1503, BHAR_ES: -0.3125**, BHAR_PS: -0.2777**), therefore indicating no influence on the return.
In China, the ES and PS are positive, but not statistically significant, while the NS is negative (for Average Abnormal Return (aAR) and Cumulative Abnormal Return (CAR)), when using Buy-and-Hold Abnormal Return (BHAR) all three scores are positive.
When looking at the combined results, the ES, PS, and NS are all negative but close to zero when using AR, all positive when using BHAR, and positive for ES and PS, and negative for NS when using CAR.
The negative ES for USA AR is significant on a 5% level, while the negative ES for Germany AR is on a 10% level significant. This implies that ethical behaviour negatively impacts the return and contrary to expectations, unethical behaviour pays higher returns. The R^2 for USA_AR_ES is 0.8226 and therefore high, implying that the ethical behaviour explains the movement of the return.
The other significant scores using AR are the negative PS (-1.5812) for the USA on a 5% level and the positive NS (0.9572) for Germany. This supports the results that ethical behaviour negatively impacts the return. For Germany, even though the ES and NS are significant, they are close to zero, -0.1739 and 0.9572 respectively, indicating no significant influence of the ethical behaviour on the return.
Therefore, the USA is the only country out of the three that shows that the ethical behaviour of a company has an influence on the adjusted stock price return and contrary to expectations a negative influence.
When using the BHAR, the ES and PS are negative and significant for the USA (5% and 10% respectively), same as for Germany; both negative and significant but both on a 5% level.

For Germany, all three ethical scores are significant. Although the ES and PS have a negative sign, they are both close to zero, indicating no influence of the ethical behaviour on the return on a 5% significance level. The NS is also significant on a 5% level but positive. Therefore, a negative ethical behaviour is rewarded by a higher stock price return; similar as to seen for the USA when using AR. For China and Combined, there are no significant scores.
Also, all three R^2 using BHAR in Germany are high, indicating a good regression model fit.
When using CAR, the PS for the USA is negative but close to zero and significant (-0.5030*) and the ES for Germany is negative (-7.2925*) and significant on a 10% level and the NS is positive (39.7538**) and significant on a 5% level. This sustains the results from the return metrics used before. Ethical behaviour is penalised in the USA, whereas unethical behaviour increases the stock prices in Germany.
As seen in table 22, China and Combined again do not have significant scores.

It is also noteworthy, that for the AR metric, the Revenue is significant and negative for the USA, Germany, and Combined. While for China the Profit Margin is significant and positive for all AR values.
Same can be found when using BHAR and CAR. However, for the combined values the Profit Margin is significant not the Revenue.
As China does not have significant ethical scores, the main driver for the return could be the profit margin. This supposition is supported by the results of Bayrakdaroglu et al. (2017). They found that there is a general positive relationship between firms' net profit margin and their stock price returns.

When incorporating the F-value and the Significance F, it is visible that almost all F-scores are significant at a 1% or 5%-level regardless of the return metric.
However, no Significance F is lower than the p-value of any score indicating that the sample data for the consumer discretionary industry does not provide sufficient evidence to conclude that the regression model fits the data better than the model with no independent values.

To summarise, within the USA when using AR and BHAR, the ES and PS are significant negative. This could imply that ethical behaviour of the company might result into a reduced return. This implicates that consumer do not reward ethical behaviour of a company but rather penalise.

For Germany, the results are only unambiguous for the NS (for all three return metrics). The higher the NS, the higher the return. This implicates that a negative ethical behaviour might benefit the return. ES and PS show no significant influence, except when using CAR, the ES is negative.

For China and all three countries combined no significant values for the three scores can be detected. This indicates that there is no impact of the ethical behaviour of a company and its return.

Concluding, ethical behaviour in the consumer discretionary industry is penalised in the USA, whereas unethical behaviour is rewarded in Germany, and does not have any influence in China and Combined.

Therefore, H1 can be rejected for the USA and Germany, while for China and Combined for the consumer discretionary industry the null hypothesis appears to be correct.

Table 22 - Consumer Discretionary Regression

			USA		GERMANY		CHINA		Combined	
			Coefficient	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
AR	CD -	Intercept	47.6504 ***	0.0003	6.1861 ***	0.0001	1.6452	0.3513	13.7388 ***	0.0002
	ES	ES	-1.4830 **	0.0357	-0.1739 *	0.0595	0.3249	0.1511	-0.0973	0.7823
		LOG Rev	-17.0739 **	0.0107	-0.7116 *	0.0589	-0.5171	0.5614	-6.3686 ***	0.0036
		PM Aver	-12.0081	0.2861	-0.0736	0.2649	14.5216 ***	0.0023	-0.4822	0.1591
		DtE	-0.7294	0.5598	0.5534 **	0.0261	-0.1856	0.8090	0.3151	0.7480
		R-Square	0.8226		0.6777		0.6262		0.2149	
		F-Score	13.9080 ***		6.3095 ***		4.6075 **		3.0797 **	
		Sign. F	0.0002		0.0057		0.0198		0.0252	
	CD -	Intercept	50.1125 ***	0.0001	6.0372 ***	0.0002	2.2927	0.2431	14.2615 ***	0.0002
	PS	PS	-1.5812 **	0.0138	-0.1503	0.1301	0.1896	0.3956	-0.1767	0.6222
		LOG Rev	-17.2794 ***	0.0063	-0.7391 *	0.0700	-0.7499	0.4231	-6.1436 ***	0.0059
		PM Aver	-9.8010	0.3450	-0.0754	0.2856	13.6561 ***	0.0059	-0.4861	0.1527
		DtE	-0.0918	0.9316	0.5824 **	0.0260	-0.0206	0.9796	0.3533	0.7184
		R-Square	0.8461		0.6405		0.5755		0.2179	
		F-Score	16.4970 ***		5.3453 **		3.7281 **		3.1334 **	
		Sign. F	0.0001		0.0105		0.0374		0.0234	
	CD -	Intercept	35.5305 ***	0.0019	4.1755 ***	0.0001	3.4694 **	0.0228	13.4283 ***	0.0000
	NS	NS	-1.2252	0.4248	0.9572 **	0.0381	-0.1484	0.7324	-0.5367	0.5742
		LOG Rev	-20.4414 ***	0.0085	-1.2032 ***	0.0014	-0.6615	0.5243	-6.3505 ***	0.0025
		PM Aver	-7.7523	0.5562	-0.0113	0.8565	12.3741 ***	0.0079	-0.5322	0.1252
		DtE	1.0317	0.4946	0.6045 **	0.0123	0.0060	0.9943	0.4717	0.6409
		R-Square	0.7528		0.6980		0.5504		0.2191	
		F-Score	9.1853 ***		6.9341 ***		3.3661 **		3.1570 **	
		Sign. F	0.0012		0.0039		0.0496		0.0227	
BHAR	CD -	Intercept	96.2025 ***	0.0001	8.2840 ***	0.0000	-18.2847 **	0.0482	21.7086 ***	0.0043
	ES	ES	-2.7767 **	0.0247	-0.3125 **	0.0125	1.2593	0.2449	0.0837	0.9102
		LOG Rev	-20.7528	0.0551	-1.4587 ***	0.0057	6.1058	0.1744	-2.6523	0.5471
		PM Aver	9.8594	0.6050	-0.1827 **	0.0420	99.9318 ***	0.0002	-1.8915 **	0.0107
		DtE	-1.5406	0.4770	0.4704	0.1169	-0.4858	0.8965	1.8911	0.3627
		R-Square	0.6187		0.7822		0.7608		0.1485	
		F-Score	4.8685 **		10.7730 ***		8.7453 ***		1.9627	
		Sign. F	0.0145		0.0006		0.0020		0.1165	
	CD -	Intercept	99.9332 ***	0.0000	8.0891 ***	0.0002	-16.3596 *	0.0898	20.3160 ***	0.0091
	PS	PS	-2.8728 *	0.0110	-0.2777 **	0.0425	0.8275	0.4321	0.3080	0.6838
		LOG Rev	-21.2961 **	0.0376	-1.4915 **	0.0104	5.2279	0.2457	-3.2132	0.4770
		PM Aver	14.0039	0.4362	-0.1873 *	0.0577	97.4277 ***	0.0003	-1.8944 ***	0.0101
		DtE	-0.3152	0.8658	0.5177	0.1140	0.1189	0.9751	1.8348	0.3765
		R-Square	0.6626		0.7383		0.7435		0.1515	

		F-Score	5.8910 ***		8.4626 ***		7.9699 ***		2.0083	
		Sign. F	0.0073		0.0017		0.0029		0.1095	
	CD -	Intercept	73.1087 ***	0.0006	4.7485 ***	0.0003	-11.0299	0.1013	21.4906 ***	0.0007
	NS	NS	-1.8930	0.4884	1.5420 **	0.0163	0.7777	0.7032	1.5691	0.4351
		LOG Rev	-26.9549 **	0.0387	-2.3176 ***	0.0001	4.2865	0.3842	-3.0997	0.4610
		PM Aver	17.2274	0.4658	-0.0773	0.3677	87.4224 ***	0.0005	-1.7679 **	0.0173
		DtE	1.5750	0.5583	0.5764 *	0.0590	0.6670	0.8649	1.4575	0.4934
		R-Square	0.4335		0.7733		0.7317		0.1599	
		F-Score	2.2956		10.2308 ***		7.4992 ***		2.1411 ***	
		Sign. F	0.1190		0.0008		0.0036		0.0912	
CAR	CD -	Intercept	19.8668 ***	0.0005	257.9772 ***	0.0001	0.6916	0.3441	18.7382	0.2708
	ES	ES	-0.4619	0.1276	-7.2925 *	0.0570	0.1332	0.1544	0.5062	0.7696
		LOG Rev	-8.8888 ***	0.0045	-29.7116 *	0.0574	-0.2177	0.5548	-12.4715	0.2267
		PM Aver	-0.1249	0.9789	-3.1095	0.2565	6.0262 ***	0.0023	14.7358 ***	0.0000
		DtE	-0.2017	0.7189	23.1962 **	0.0249	-0.0760	0.8109	4.7500	0.3263
		R-Square	0.7770		0.6819		0.6280		0.6676	
		F-Score	10.4554 ***		6.4296 ***		4.6432 **		22.5920 ***	
		Sign. F	0.0007		0.0053		0.0193		0.0000	
	CD -	Intercept	20.7379 ***	0.0003	251.8908 ***	0.0002	0.9621	0.2368	19.5960	0.2655
	PS	PS	-0.5030 *	0.0723	-6.3201	0.1254	0.0769	0.4043	0.3277	0.8525
		LOG Rev	-8.9341 ***	0.0032	-30.8295 *	0.0687	-0.3134	0.4185	-12.2483	0.2475
		PM Aver	0.5611	0.9056	-3.1866	0.2769	5.6640 ***	0.0058	14.7798 ***	0.0000
		DtE	-0.0069	0.9890	24.4038 **	0.0248	-0.0080	0.9807	4.6402	0.3381
		R-Square	0.7939		0.6447		0.5778		0.6672	
		F-Score	11.5594 ***		5.4430 ***		3.7641 **		22.5531 ***	
		Sign. F	0.0004		0.0098		0.0364		0.0000	
	CD -	Intercept	16.1391 ***	0.0009	173.8137 ***	0.0001	1.4394 **	0.0224	22.1948	0.1178
	NS	NS	-0.4291	0.4983	39.7538 **	0.0384	-0.0624	0.7275	-1.4087	0.7642
		LOG Rev	-9.9500 ***	0.0031	-50.2800 ***	0.0013	-0.2754	0.5211	-10.9267	0.2692
		PM Aver	1.2718	0.8146	-0.5128	0.8444	5.1505 ***	0.0076	14.6907 ***	0.0000
		DtE	0.3684	0.5552	25.3709 **	0.0118	0.0021	0.9952	5.0697	0.3108
		R-Square	0.7379		0.6996		0.5541		0.6676	
		F-Score	8.4464 ***		6.9868 ***		3.4179 **		22.5952 ***	
		Sign. F	0.0018		0.0038		0.0476		0.0000	

Table 22 – Consumer Discretionary Regression.

Table 22 table presents the regression results of the return and the independent variables, including the ethical score for the consumer discretionary (CD) industry.

The dependent variable is the return, which is measured in three ways: the average abnormal return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR). The return covers the time period from 2010 to 2017.

The independent variables are defined as follows: Ethical Score (ES) (as the difference between the Positive Score and the Negative Score), Positive Score (PS), Negative Score (NS), the log revenue [in bn $] 2010 (LOG Rev), profit margin averaged over the time frame from 2010 to 2017 (PM Aver), and Debt-to-Equity in 2010 (DtE).

The regression is run for each country, namely USA, Germany, and China, and also combined. The combined results are the data for each country in the consumer discretionary industry merged.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

6.2.2.2 Consumer Staples

The Consumer Staples Industry is defined as "Companies that provide direct-to-consumer products that, based on consumer purchasing habits, are typically considered nondiscretionary. "(Vanguard) The main challenge is not that the product is needed but rather to be chosen over the competition between other companies. According to Christensen and Russel (2014) companies "fight to become the low-cost leader or to differentiate their product enough that consumers are willing to pay a premium." Therefore, brand recognition is an integral part in the consumer staples industry.

As these products are goods that are purchased on a daily basis and are essential for living, it is expected that there is no impact of the ethical score on the return.

H0: For consumer staples, the Ethical Score no impact on the share price return

When looking at the results of the consumer staples industry regression analysis, it is noticeable that for all three countries there is no significant ethical score and also no other significant value in the regression that could otherwise explain the return.
Also, there is no high R^2 in any of the regression.
However, when looking at all three countries combined, there are significant values. When using BHAR as the return metric, the coefficient for the revenue is positive and significant for ES (6.0401) and PS (6.3420) on a 5% level. The revenue of the company might be a better explanator for the return than the ethical score. The higher the revenue, the higher the return. This might be in line with the argument that brand recognition plays an important role. Consumers are 71% more inclined to buy from brand they know and recognize (Global Banking and Finance Review). The bigger the return, the bigger the company, the more it is known, the more likely consumers are to buy a product from that brand.
The ethical behaviour of the company seems not to be the main variable for choosing a certain product but rather is brand recognition.

However, when looking at the CAR as the return metric, the results are different as seen in table 5.2. For ES and PS, the return is significant but negative on a 5% significance level, -26.5536 and -29.2788 respectively. And also, the profit margin is significant and positive on a 5% level for all three, ES, PS and NS (2.2636, 2.2598, 2.5818). The Debt-to-Equity Ratio is also significant for all three. They are all negative and significant on a 5% level for ES (-25.0392) and PS (-25.1498) and significant on a 10% level for NS (-27.2159).
As there is no ethical figure that is significant for the consumer staples industry, the drivers for the return are other independent variables. For this regression, Revenue, Profit Margin and Debt-to-Equity show evidence of significance but differ in regards to the return metric used.

When incorporating the F-value and Significance F, it is visible that the F-value is significant for BHAR combined on a. 5% level as well as for CAR combined on a 1% level.

In conclusion, for the consumer staples industry, the ethical behaviour of a company does not have any impact on the return but rather other independent variables such as revenue, profit margin, and debt-to-equity ratio. Therefore, the hypothesis can be confirmed.

Table 23 - Consumer Staples Regression

			USA		GERMANY		CHINA		Combined	
			Coefficient	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
AR	CS -	Intercept	28.2784	0.2464	2.3583	0.1683	-0.8321	0.5723	3.2722 *	0.0659
	ES	ES	-0.6098	0.4003	0.0792	0.6176	0.1152	0.5779	-0.1378	0.4223
		LOG Rev	-7.2467	0.4374	-0.2167	0.7255	-1.1884	0.3920	0.2630	0.7505
		PM Aver	-6.6469	0.9299	0.0284	0.2513	-0.5459	0.6216	0.0756	0.1969
		DtE	-4.4604	0.4023	-0.1159	0.8778	1.6421	0.1675	-0.9766	0.2902
		R-Square	0.4216		0.2002		0.2709		0.1031	
		F-Score	0.7289		0.6257		0.6502		0.8913	
		Sign. F	0.6166		0.6549		0.6447		0.4808	
	CS -	Intercept	22.0364	0.3578	2.3583	0.1683	-0.7687	0.6386	3.5307 *	0.0616
	PS	PS	-0.5678	0.4696	0.0792	0.6176	0.0770	0.6939	-0.1666	0.3676
		LOG Rev	-3.9338	0.7060	-0.2167	0.7255	-1.1067	0.4475	0.4255	0.6300
		PM Aver	-22.3767	0.7539	0.0284	0.2513	-0.3884	0.7090	0.0782	0.1836
		DtE	-3.1471	0.5654	-0.1159	0.8778	1.6134	0.1942	-0.9906	0.2825
		R-Square	0.3908		0.2002		0.2534		0.1081	
		F-Score	0.6414		0.6257		0.5939		0.9390	
		Sign. F	0.6612		0.6549		0.6786		0.4544	
	CS -	Intercept	38.7670	0.3085	3.1380 ***	0.0001	0.2699	0.8651	2.1458 **	0.0428
	NS	NS	1.3522	0.6014	0.0000	#ZAHL!	-0.4047	0.6083	-0.0442	0.9281
		LOG Rev	-15.4109	0.4059	-0.0187	#ZAHL!	-0.8246	0.4602	0.0979	0.9108
		PM Aver	-9.5141	0.9168	0.0318	0.1816	-0.4040	0.6850	0.0659	0.2534
		DtE	-7.1977	0.3866	-0.1726	0.8148	1.1185	0.3478	-0.9030	0.3301
		R-Square	0.3462		0.2197		0.2656		0.0843	
		F-Score	0.5295		0.7038		0.6330		0.7131	
		Sign. F	0.7234		0.6071		0.6549		0.5893	
BHAR	CS -	Intercept	77.7353	0.2674	0.9651	0.6739	0.6343	0.7423	5.6238	0.2798
	ES	ES	-1.7991	0.3925	0.1456	0.5148	0.0333	0.9018	-0.6512	0.2065
		LOG Rev	-14.7396	0.5777	-0.6691	0.4451	-0.5474	0.7595	6.0401 **	0.0191
		PM Aver	-55.7340	0.7998	0.0444	0.2049	-0.1845	0.8986	0.1475	0.3944
		DtE	-4.6529	0.7530	-0.4193	0.6927	0.9617	0.5164	3.2162	0.2432
		R-Square	0.3549		0.2846		0.0699		0.2778	
		F-Score	0.5501		0.9947		0.1315		2.9804 **	
		Sign. F	0.7116		0.4540		0.9658		0.0342	
	CS -	Intercept	58.1927	0.3859	0.9651	0.6739	0.8508	0.6898	5.0433	0.3652
	PS	PS	-1.9330	0.3898	0.1456	0.5148	-0.0109	0.9656	-0.5714	0.3061
		LOG Rev	-3.3541	0.9083	-0.6691	0.4451	-0.3728	0.8277	6.3420 **	0.0233
		PM Aver	-93.5506	0.6447	0.0444	0.2049	-0.0545	0.9679	0.1438	0.4131
		DtE	-0.3341	0.9823	-0.4193	0.6927	0.8598	0.5762	3.2633	0.2409
		R-Square	0.3564		0.2846		0.0680		0.2647	
		F-Score	0.5538		0.9947		0.1277		2.7892 **	
		Sign. F	0.7094		0.4540		0.9676		0.0435	
	CS -	Intercept	80.1695	0.4679	2.3985 ***	0.0050	1.7346	0.4037	0.1033	0.9731
	NS	NS	1.2837	0.8668	0.0000	#ZAHL!	-0.6629	0.5126	1.2862	0.3825
		LOG Rev	-22.9615	0.6697	-0.3050	#ZAHL!	-0.5735	0.6825	4.1715	0.1174
		PM Aver	-127.7665	0.6455	0.0505	0.1373	-0.4285	0.7351	0.0965	0.5729
		DtE	-6.5804	0.7827	-0.5235	0.6172	0.4354	0.7675	3.5523	0.2023
		R-Square	0.2133		0.2903		0.1271		0.2578	
		F-Score	0.2711		1.0225		0.2547		2.6913 **	
		Sign. F	0.8829		0.4414		0.8979		0.0492	
CAR	CS -	Intercept	117.8791	0.2451	103.9602	0.1633	0.8490	0.1687	47.6702 *	0.0823
	ES	ES	-2.5298	0.4010	2.3363	0.7342	0.0310	0.7015	4.1771	0.1211
		LOG Rev	-30.2295	0.4356	-10.9824	0.6830	-0.5538	0.3161	-26.5536 **	0.0445
		PM Aver	-28.0591	0.9288	1.3050	0.2275	-0.2386	0.5844	2.2636 **	0.0158
		DtE	-18.5653	0.4015	-8.8702	0.7872	0.7108	0.1343	-25.0392 *	0.0843
		R-Square	0.4220		0.2116		0.3387		0.5008	
		F-Score	0.7301		0.6711		0.8963		7.7742 ***	
		Sign. F	0.6160		0.6268		0.5139		0.0002	
	CS -	Intercept	91.9835	0.3557	103.9602	0.1633	0.8633	0.2016	48.3442 *	0.0995
	PS	PS	-2.3557	0.4700	2.3363	0.7342	0.0212	0.7811	4.0304	0.1671
		LOG Rev	-16.4841	0.7035	-10.9824	0.6830	-0.5092	0.3371	-29.2788 **	0.0402
		PM Aver	-93.2986	0.7530	1.3050	0.2275	-0.1974	0.6289	2.2598 **	0.0174

	DtE	-13.1166	0.5641	-8.8702	0.7872	0.7043	0.1531	-25.1498 *	0.0856
	R-Square	0.3913		0.2116		0.3316		0.4926	
	F-Score	0.6429		0.6711		0.8682		7.5249 ***	
	Sign. F	0.6605		0.6268		0.5275		0.0002	
CS -	Intercept	161.3449	0.3077	126.9574 ***	0.0001	1.1351	0.1017	82.7483 ***	0.0000
NS	NS	5.6062	0.6021	0.0000	#ZAHL!	-0.1015	0.7425	-5.7203	0.4612
	LOG Rev	-64.0727	0.4055	-5.1407	#ZAHL!	-0.4539	0.3104	-16.4094	0.2393
	PM Aver	-40.0529	0.9156	1.4041	0.1666	-0.1965	0.6173	2.5818 ***	0.0070
	DtE	-29.9111	0.3864	-10.5424	0.7371	0.5749	0.2301	-27.2159 *	0.0682
	R-Square	0.3468		0.2654		0.3348		0.4694	
	F-Score	0.5309		0.8992		0.8806		6.8560 ***	
	Sign. F	0.7226		0.4998		0.5215		0.0004	

Table 23 presents the regression results of the return and the independent variables, including the ethical score for the consumer staples (CS) industry.

The dependent variable is the return, which is measured in three ways: the average abnormal return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR). The return covers the time period from 2010 to 2017.

The independent variables are defined as follows: Ethical Score (ES) (as the difference between the Positive Score and the Negative Score), Positive Score (PS), Negative Score (NS), the log revenue [in bn $] 2010 (LOG Rev), profit margin averaged over the time frame from 2010 to 2017 (PM Aver), and Debt-to-Equity in 2010 (DtE).

The regression is run for each country, namely USA, Germany, and China, and also combined. The combined results are the data for each country in the consumer discretionary industry merged.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

6.2.2.3 Energy

The Energy Industry is defined as “companies involved in the exploration and production of energy products, such as oil, natural gas, and coal.” (Vanguard)

It comprises of companies that are directly and indirectly involved in the production and distribution of energy needed to power the economy and facilitate the means of production and transportation. The industry can be divided into non-renewables and renewables (Chen, 2018).

As renewable energy and climate consciousness is an integral part of ethical values, it is expected that the sector shows an impact of the ethical score on the return.

An explanation for a positive impact might be that consumers reward ethical behaviour and renewable energy.

An explanation for a negative impact might be that costs are higher for renewable, environmentally friendly, clean energy.

Therefore, the following hypotheses are proposed:

> H1a: For the energy industry, the Ethical Score a positive impact on the share price return
>
> H1b: For the energy industry, the Ethical Score a negative impact on the share price return

However, when looking at the regression output, no significant ethical score can be found. For the USA, all three score (ES, PS, NS) are positive and close to zero for all three return measurements. This implicates no influence of the ethical behaviour on the return.
As the ethical behaviour is not the driving factor, the Profit Margin is significant on a 5% and 10% level for AR and CAR. Regardless of ES, PS, and NS, it is always negative. This implies that a high profit margin results into lower adjusted share price return. This contradicts the results of Öztürk (2017) who found that high profit margins generate higher returns.
Additionally, the revenue is significantly for AR_PS with -0.9572 on a 10% level and CAR_PS with -3.9997 on a 10% level.
For Germany, the ES always has a negative sign, while PS and NS are always positive regardless of the return metric used. These results are conflicting, as it is expected that ES and PS always should have the same sign as there is no negative ES for Germany.
However, all coefficients for any ethical score are close to zero, therefore indicating no impact of the ethical behaviour on the return.

For China, the ES, PS, and NS are negative but close to zero for AR and CAR and only positive for ES and PS using BHAR as seen in table 5.3. All of them are close to zero, implicating no impact of the ethical behaviour on the return. However, none of the values is statistically significant.
When looking at the Combined results, all signs for ES, PS and NS are negative for AR and BHAR but the values are all close to zero. The only exception can be found for BHAR_ES with a positive value, but also close to zero (0.0560). All ethical values for CAR are positive. But again, none of the ethical values are statistically significant.
When looking at other factors that can drive the return, it is visible that the Debt-to-Equity Ratio is four times statistically significant. For AR-ES it is significant on a 10% level with -1.5997, and for BHAR it is significant for all three scores (8.8510, 9.0042, 9.9834) on a 1% significance level.
Also noteworthy is, that all F-values are not significant.

In conclusion, it can be found that the ethical behaviour, contrary to expectations, does not have any impact on the return, neither negative nor positive. There is evidence that a link between the Profit Margin and the Debt-to-Equity Ratio exists in regards to the return.

Table 24 - Energy Regression

			USA		GERMANY		CHINA		Combined	
			Coefficient	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
AR	EN -	Intercept	-0.0893	0.9464	1.7159	#ZAHL!	0.9631	0.8364	2.4043 *	0.0793
	ES	ES	0.0850	0.4608	-0.0278	#ZAHL!	-0.0225	0.9093	-0.0931	0.3725
		LOG Rev	-0.4586	0.1974	0.0000	#ZAHL!	0.0854	0.9617	-0.3992	0.3416
		PM Aver	-11.1307 *	0.0669	-0.1490	#ZAHL!	-1.0911	0.9338	0.1026	0.5763
		DtE	-0.3656	0.6253	0.0000	#ZAHL!	0.3878	0.8806	-1.5597 *	0.0708
		R-Square	0.8055		1.0000		0.0884		0.3324	
		F-Score	3.1057		#ZAHL!		0.0485		1.6182	
		Sign. F	0.1894		#ZAHL!		0.9922		0.2286	
	EN -	Intercept	-0.3056	0.7761	1.3475	#ZAHL!	0.3728	0.9479	2.3409 *	0.0679
	PS	PS	0.2021	0.2052	0.0000	#ZAHL!	-0.0485	0.8357	-0.0966	0.3400
		LOG Rev	-0.9572 *	0.0983	0.0415	#ZAHL!	0.3504	0.8804	-0.2838	0.5077
		PM Aver	-13.8615 **	0.0378	-0.1559	#ZAHL!	0.7467	0.9641	0.0905	0.6139
		DtE	-0.9302	0.2743	0.0000	#ZAHL!	0.8005	0.8193	-1.3369	0.1412
		R-Square	0.8711		1.0000		0.1057		0.3385	
		F-Score	5.0685		#ZAHL!		0.0591		1.6633	
		Sign. F	0.1067		#ZAHL!		0.9888		0.2180	
	EN -	Intercept	0.3928	0.7722	1.3531	#ZAHL!	-0.0961	0.9875	1.5307	0.1337
	NS	NS	0.0021	0.9879	0.0305	#ZAHL!	-0.2516	0.7813	-0.0549	0.8318
		LOG Rev	-0.4185	0.3862	0.0000	#ZAHL!	0.4721	0.8355	-0.3249	0.5393
		PM Aver	-9.5486 *	0.0907	-0.1529	#ZAHL!	0.5839	0.9645	0.0546	0.7692
		DtE	-0.1804	0.8218	0.0000	#ZAHL!	1.4397	0.7673	-1.5613	0.1379
		R-Square	0.7593		1.0000		0.1248		0.2912	
		F-Score	2.3665		#ZAHL!		0.0713		1.3350	
		Sign. F	0.2525		#ZAHL!		0.9844		0.3089	
BHAR	EN -	Intercept	10.0710	0.3702	1.8467	#ZAHL!	0.2615	0.8965	-4.4878	0.2314
	ES	ES	0.5408	0.6878	-0.1588	#ZAHL!	0.0092	0.9140	0.0560	0.8476
		LOG Rev	-3.0701	0.4918	0.0000	#ZAHL!	0.0052	0.9946	0.9689	0.4126
		PM Aver	58.6068	0.2202	-0.0064	#ZAHL!	-1.7280	0.7642	-0.5374	0.3081
		DtE	1.4316	0.8466	0.0000	#ZAHL!	-0.0902	0.9356	8.8510 ***	0.0017
		R-Square	0.7123		1.0000		0.2536		0.5862	
		F-Score	1.8571		#ZAHL!		0.1699		4.6042	
		Sign. F	0.3192		#ZAHL!		0.9357		0.0155	
	EN -	Intercept	12.7252	0.2483	-0.2573	#ZAHL!	0.1943	0.9382	-3.8258	0.2738
	PS	PS	0.3654	0.7218	0.0000	#ZAHL!	0.0028	0.9783	-0.0216	0.9393
		LOG Rev	-2.4060	0.4772	0.2369	#ZAHL!	0.0399	0.9688	0.9876	0.4201
		PM Aver	-48.0340	0.1831	-0.0453	#ZAHL!	-1.4371	0.8444	-0.5069	0.3279
		DtE	2.8951	0.6211	0.0000	#ZAHL!	-0.0589	0.9692	9.0042 ***	0.0026
		R-Square	0.7298		1.0000		0.2484		0.5852	
		F-Score	2.0255		#ZAHL!		0.1653		4.5847	
		Sign. F	0.2942		#ZAHL!		0.9383		0.0158	
	EN -	Intercept	12.7252	0.2483	-0.2253	#ZAHL!	-0.6938	0.7900	-4.4476	0.1092
	NS	NS	0.3654	0.7218	0.1744	#ZAHL!	-0.1568	0.6850	-0.4676	0.5063
		LOG Rev	-2.4060	0.4772	0.0000	#ZAHL!	0.3918	0.6876	1.5241	0.2937
		PM Aver	-48.0340	0.1831	-0.0281	#ZAHL!	0.4736	0.9317	-0.5788	0.2614
		DtE	2.8951	0.6211	0.0000	#ZAHL!	0.7259	0.7245	9.9834 ***	0.0025
		R-Square	0.7261		1.0000		0.3227		0.5994	
		F-Score	1.9880		#ZAHL!		0.2382		4.8625	
		Sign. F	0.2995		#ZAHL!		0.8959		0.0128	
CAR	EN -	Intercept	-0.1850	0.9730	67.1615	#ZAHL!	0.4090	0.8342	12.2021	0.5269
	ES	ES	0.3479	0.4630	-0.7187	#ZAHL!	-0.0098	0.9054	1.1810	0.4447
		LOG Rev	-1.9144	0.1926	0.0000	#ZAHL!	0.0325	0.9652	-5.1101	0.4105
		PM Aver	-46.1295 *	0.0657	-6.3849	#ZAHL!	-0.4847	0.9299	0.8604	0.7515
		DtE	-1.5364	0.6182	0.0000	#ZAHL!	0.1527	0.8877	-18.1145	0.1481
		R-Square	0.8078		1.0000		0.0910		0.2186	
		F-Score	3.1530		#ZAHL!		0.0500		0.9092	
		Sign. F	0.1864		#ZAHL!		0.9917		0.4871	
	EN -	Intercept	-1.1280	0.7954	57.6395	#ZAHL!	0.1606	0.9465	13.5903	0.4526
	PS	PS	0.8438	0.1952	0.0000	#ZAHL!	-0.0207	0.8330	1.1498	0.4435
		LOG Rev	-3.9997 *	0.0920	1.0721	#ZAHL!	0.1439	0.8828	-6.4908	0.3157
		PM Aver	-57.6629 **	0.0354	-6.5610	#ZAHL!	0.2859	0.9672	1.0353	0.6985
		DtE	-3.9095	0.2604	0.0000	#ZAHL!	0.3268	0.8238	-20.6717	0.1286
		R-Square	0.8764		1.0000		0.1084		0.2188	
		F-Score	5.3186		#ZAHL!		0.0608		0.9102	
		Sign. F	0.1006		#ZAHL!		0.9883		0.4866	
	EN -	Intercept	1.8088	0.7461	57.7841	#ZAHL!	-0.0104	0.9968	22.8267	0.1300
	NS	NS	0.0185	0.9746	0.7891	#ZAHL!	-0.1018	0.7889	0.2265	0.9526

LOG Rev	-1.7712	0.3740	0.0000	#ZAHL!	0.1844	0.8467	-5.4896	0.4832
PM Aver	-39.6824 *	0.0885	-6.4833	#ZAHL!	0.1567	0.9773	1.4027	0.6111
DtE	-0.7933	0.8096	0.0000	#ZAHL!	0.5734	0.7787	-17.0344	0.2635
R-Square	0.7628		1.0000		0.1237		0.1815	
F-Score	2.4115		#ZAHL!		0.0706		0.7207	
Sign. F	0.2477		#ZAHL!		0.9847		0.5930	

Table 24 presents the regression results of the return and the independent variables, including the ethical score for the energy (EN) industry. The dependent variable is the return, which is measured in three ways: the average abnormal return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR). The return covers the time period from 2010 to 2017.

The independent variables are defined as follows: Ethical Score (ES) (as the difference between the Positive Score and the Negative Score), Positive Score (PS), Negative Score (NS), the log revenue [in bn $] 2010 (LOG Rev), profit margin averaged over the time frame from 2010 to 2017 (PM Aver), and Debt-to-Equity in 2010 (DtE).

The regression is run for each country, namely USA, Germany, and China, and also combined. The combined results are the data for each country in the consumer discretionary industry merged.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

6.2.2.4 Finance

The financial industry is defined as “companies that provide financial services” by Vanguard and is comprised of many different industries including banks, investment companies, insurance companies, and real estate firms (Kenton, 2018).

For this industry, no impact of ethical behaviour on the return is expected. As opposed to other industries, the financial industry and its corporations might appear less transparent to many consumers which makes the decision to incorporate ethical values into the decision process more difficult. Furthermore, it is assumed that most consumers tend to put greater emphasis on the financial aspect and costs of e.g. mortgages or loans as the sums are higher than with other purchases from e.g. the consumer staples industry. Therefore, there is no impact expected.

This leads to the following hypothesis:

> H0: For the financial industry, the Ethical Score has no impact on the share price return

For the USA, regardless of the return metric, the ES and PS have a negative sign, while the NS has a positive, while all are close to zero as seen in table 5.4. The same can be found for Germany, with the exception that for CAR the coefficients are greater (CAR_ES: -10.4375, CAR_PS: -13.0263, CAR_NS: 14.1596). China has all negative coefficients for all three ethical scores using AR and CAR, while all are close to zero. For BHAR, ES and PS are also negative and close to zero, but NS is positive (0.2812).

Combined, the ES and PS are close to zero and negative, while the NS is positive and also close to zero when using AR. For BHAR and CAR, all three are positive, but for BHAR they are close to zero, while they are greater for CAR (CAR_ES: 1.2397, CAR_PS: 2.1559, CAR_NS: 13.3673).
The NS for Combined is the only ethical figure that is significant. It is significant on a 4.33% level. This implies that unethical behaviour is rewarded for all countries combined in the financial industry.
As it is noticeable that almost no ethical figure is statistically significant, there are other coefficients that are significant for the financial industry, implying that other factors do drive the return of the industry.
For the USA, it is the Debt-to-Equity Ratio that has a statistically significant influence. For Germany, it is the revenue and the Debt-to-Equity Ratio. For China, it is the revenue and the profit margin. And for all countries combined, it is the revenue, debt-to-equity, and the profit margin.
The USA has a significant Debt-to-Equity Ratio for the ES and PS for all three return metrics and for CAR also the NS is significant. For AR they range around -0.8, for BHAR, they range around -1.75, and for CAR around -0.31 and -0.35. The sign for all is negative but they are mostly close to zero indicating no influence (statistically significant).
Germany, has significant figures for revenue for ES and NS for all three return metrics, that all have a negative sign. Only for AR they are close to zero (AR_ES: -0.6365 **, AR_NS: -0.8963**). The Debt-to-Equity ratio is significant on a 1% level for AR and CAR for all three ethical scores. For AR, they are close to zero, for CAR, they are between -35.3832 and 40.1533. This indicates that the lower the Debt-to-Equity Ratio is, the higher the (cumulative abnormal) return. Supporting this, is also the fact, that the R2 is medium high for AR and CAR.
For China, the revenue and the profit margin are statistically significant. For the revenue, AR and CAR are significant on a 5% and 10% level for all three ethical scores. All are negative, while the AR values are around -1.2 and the CAR are around -0.56.
For the Profit Margin, all three return metrics and all three ethical score are statistically significant; all have a negative sign. AR and CAR are significant on a 5% level and are raging around -5.8 and -2.3 respectively, while BHAR is significant on a 10% level and ranges around -2. This indicates that the lower the Profit Margin, the higher the stock return is. This is counterintuitive and differs from expectation.

When looking at the combined regression results, the revenue and debt-to-equity ratio are significant for AR and CAR for all three ethic scores; and all have negative signs.
The profit margin is significant on a 10% level for BHAR ES and PS, and significant on a 1% level for CAR ES, PS, and NS. For CAR, the sign is positive for all three. This indicates that for CAR, an increasing profit margin results in higher stock return. This is in line with expectation.

In conclusion, for the financial industry it can be found that a negative ethical behaviour is rewarded in terms of (cumulative abnormal) stock return when all countries are combined. Otherwise, ethical behaviour, positive or negative, does not have any influence on the return. The return is driven by other factors, namely revenue, Debt-to-Equity, and Profit Margin.

Table 25 - Finance Regression

			USA		GERMANY		CHINA		Combined	
			Coefficient	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
AR	FI -	Intercept	9.5544	0.1978	5.9754 ***	0.0001	6.4772 ***	0.0001	3.2064 ***	0.0000
	ES	ES	-0.3806	0.3120	-0.2457	0.1235	-0.0326	0.7885	-0.0065	0.9102
		LOG Rev	-4.4914	0.2845	-0.6375 **	0.0311	-1.2448 *	0.0526	-0.6603 ***	0.0038
		PM Aver	15.8084	0.3583	0.0198	0.6101	-5.8661 **	0.0202	0.0416	0.3160
		DtE	-0.8584 **	0.0370	-0.8790 ***	0.0017	-0.0433	0.7278	-0.2241 ***	0.0000
		R-Square	0.4754		0.7761		0.3491		0.4106	
		Sign. F	0.0039		0.0007		0.0613		0.0000	
		F-Score	5.2098		10.3986		2.6821		11.3224	
	FI -	Intercept	9.0666	0.2233	6.7143 ***	0.0010	6.5192 ***	0.0001	3.1909 ***	0.0000
	PS	PS	-0.4700	0.2669	-0.3042	0.1360	-0.0380	0.7425	-0.0030	0.9601
		LOG Rev	-3.6135	0.4195	-0.4284	0.1822	-1.2364 *	0.0528	-0.6606 ***	0.0042
		PM Aver	17.7353	0.3151	0.0124	0.7503	-5.8875 **	0.0194	0.0413	0.3210
		DtE	-0.8393 **	0.0410	-0.9432 ***	0.0010	-0.0404	0.7459	-0.2251 ***	0.0000
		R-Square	0.4802		0.7732		0.3503		0.4105	
		Sign. F	0.0035		0.0008		0.0603		0.0000	
		F-Score	5.3127		10.2256		2.6963		11.3180	
	FI -	Intercept	11.3994	0.1244	4.0070 ***	0.0002	6.5677 ***	0.0001	3.1529 ***	0.0000
	NS	NS	0.2085	0.9016	0.3421	0.3914	-0.3386	0.6448	0.0661	0.7845
		LOG Rev	-6.6635	0.1074	-0.8963 **	0.0354	-1.2985 **	0.0344	-0.6835 ***	0.0044
		PM Aver	8.2614	0.6013	0.0241	0.5761	-5.6847 **	0.0202	0.0407	0.3217
		DtE	-0.9900	0.0147	-0.8337 ***	0.0061	-0.0470	0.6884	-0.2261 ***	0.0000
		R-Square	0.4514		0.7419		0.3538		0.4112	
		F-Score	4.7303		8.6232		2.7376		11.3489	
		Sign. F	0.0062		0.0016		0.0576		0.0000	
BHAR	FI -	Intercept	35.2083 ***	0.0031	7.9514 **	0.0389	2.2490 ***	0.0010	10.6898 ***	0.0031
	ES	ES	0.3658	0.5086	-0.5641	0.2468	-0.0121	0.8258	0.2129	0.6138
		LOG Rev	-4.5689	0.4588	-1.7412 *	0.0541	-0.4191	0.1407	-2.6213	0.1104
		PM Aver	7.4383	0.7683	0.0330	0.7850	-2.0075 *	0.0708	-0.5111 *	0.0967
		DtE	-1.7522 ***	0.0056	-0.7338	0.3040	-0.0248	0.6599	0.4876	0.2004
		R-Square	0.3977		0.4893		0.2415		0.0955	
		F-Score	3.7972		2.8741		1.5920		1.7149	
		Sign. F	0.0164		0.0698		0.2152		0.1574	
	FI -	Intercept	35.4915 ***	0.0032	9.5906 *	0.0699	2.2234 ***	0.0013	10.3465 ***	0.0056
	PS	PS	0.4138	0.5070	-0.6908	0.2672	-0.0040	0.9386	0.2659	0.5447
		LOG Rev	-5.1818	0.4358	-1.2671	0.2041	-0.4318	0.1284	-2.7244	0.1011
		PM Aver	6.3431	0.8070	0.0159	0.8952	-1.9704 *	0.0751	-0.5176 *	0.0929
		DtE	-1.7580 ***	0.0057	-0.8805	0.2230	-0.0277	0.6250	0.4713	0.2176
		R-Square	0.3978		0.4844		0.2399		0.0970	
		F-Score	3.7986		2.8183		1.5777		1.7462	
		Sign. F	0.0163		0.0734		0.2189		0.1506	
	FI -	Intercept	33.3591 ***	0.0040	3.3986	0.1704	2.0377 ***	0.0021	11.5006 ***	0.0002
	NS	NS	-0.7846	0.7497	0.8129	0.4980	0.2812	0.3939	0.5783	0.7456

		LOG Rev	-1.9704	0.7370	-2.3537 *	0.0620	-0.4361	0.1029	-2.7254	0.1155
		PM Aver	14.9076	0.5184	0.0437	0.7367	-1.9794 *	0.0629	-0.4911	0.1070
		DtE	-1.6422 ***	0.0064	-0.6233	0.4278	-0.0361	0.4921	0.5509	0.1262
		R-Square	0.3887		0.4486		0.2674		0.0934	
		F-Score	3.6560		2.4411		1.8253		1.6733	
		Sign. F	0.0191		0.1037		0.1636		0.1669	
CAR	FI -	Intercept	2.8163	0.3584	247.7722 ***	0.0002	2.7048 ***	0.0001	72.4335 ***	0.0000
	ES	ES	-0.1079	0.4892	-10.4375	0.1216	-0.0117	0.8161	1.2397	0.4349
		LOG Rev	-1.1970	0.4909	-27.4906 **	0.0283	-0.5553 **	0.0389	-42.6202 ***	0.0000
		PM Aver	5.9641	0.4053	1.1376	0.4904	-2.3152 **	0.0266	4.3285 ***	0.0003
		DtE	-0.3173 *	0.0620	-37.4169 ***	0.0016	-0.0190	0.7134	-3.3113 **	0.0225
		R-Square	0.3713		0.7814		0.3495		0.6471	
		F-Score	3.3953		10.7217		2.6863		29.7917	
		Sign. F	0.0254		0.0006		0.0610		0.0000	
	FI -	Intercept	2.7003	0.3832	279.9475 ***	0.0010	2.7227 ***	0.0001	67.3412 ***	0.0000
	PS	PS	-0.1287	0.4641	-13.0263	0.1306	-0.0144	0.7650	2.1559	0.1902
		LOG Rev	-0.9758	0.6009	-18.5238	0.1721	-0.5513 **	0.0392	-43.6343 ***	0.0000
		PM Aver	6.4195	0.3837	0.8202	0.6177	-2.3259 **	0.0254	4.2248 ***	0.0004
		DtE	-0.3134 *	0.0659	-40.1533 ***	0.0010	-0.0177	0.7329	-3.5896 **	0.0134
		R-Square	0.3729		0.7792		0.3507		0.6531	
		F-Score	3.4188		10.5897		2.7002		30.5881	
		Sign. F	0.0247		0.0007		0.0601		0.0000	
	FI -	Intercept	3.3487	0.2672	164.6019 ***	0.0003	2.7539 ***	0.0001	73.7006 ***	0.0000
	NS	NS	0.1295	0.8522	14.1596	0.4018	-0.1494	0.6243	13.3673 **	0.0433
		LOG Rev	-1.8746	0.2644	-38.2408 **	0.0343	-0.5749 **	0.0252	-46.3747 ***	0.0000
		PM Aver	3.7977	0.5602	1.3099	0.4753	-2.2472 **	0.0262	4.4061 ***	0.0002
		DtE	-0.3526 **	0.0322	-35.5832 ***	0.0058	-0.0197	0.6862	-2.9561 **	0.0262
		R-Square	0.3587		0.7476		0.3557		0.6656	
		F-Score	3.2168		8.8453		2.7598		32.3387	
		Sign. F	0.0309		0.0014		0.0562		0.0000	

Table 25 presents the regression results of the return and the independent variables, including the ethical score for the Financial (FI) industry. The dependent variable is the return, which is measured in three ways: the average abnormal return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR). The return covers the time period from 2010 to 2017.

The independent variables are defined as follows: Ethical Score (ES) (as the difference between the Positive Score and the Negative Score), Positive Score (PS), Negative Score (NS), the log revenue [in bn $] 2010 (LOG Rev), profit margin averaged over the time frame from 2010 to 2017 (PM Aver), and Debt-to-Equity in 2010 (DtE).

The regression is run for each country, namely USA, Germany, and China, and also combined. The combined results are the data for each country in the consumer discretionary industry merged.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

6.2.2.5 HealthCare

The HealthCare Industry is defined as “companies involved in providing medical or health care products, services, technology, or equipment” (Vanguard).
As the health care industry is very complex and therefore not easily transparent for the consumer, it is expected that ethical behaviour does have no influence on the return. Another reason it that the importance of patents and medical availability can be bound to one company, therefore leaving the costumers no choice but to buy from the company.

This leads to the following hypothesis:

> H0: For the healthcare industry, the Ethical Score has no impact on the share price return

When looking at the signs for the ethical score coefficients in the USA, it is noticeable that all signs, for ES, PS and NS as well, are negative. While the coefficients for ES and PS are close to zero, the coefficient for NS is unambiguous. For Germany, all signs are positive. However, for AR and BHAR, they are close to zero, while for CAR they are higher (CAR_ES: 4.7987, CAR_PS: 11.7288, CAR_NS: 18.9875). For China, some error occurred in the regression. The coefficients for ES and PS are close to zero and positive, while for NS they are exactly 0.0000.
For all countries combined, for AR and BHAR all coefficients for all three scores are negative, while for ES and PS, they are close to zero. For CAR, the ES and PS are positive and the NS is negative.
Regarding the significance of the ethical scores, for the USA, the NS is significant for all three return metrics is always negative. For AR and CAR, it is significant on a 5% level, while for BHAR it is on a 10% level. This indicates, that the higher the negative score, the lower the return. Within the healthcare industry in the USA, negative ethical behaviour is penalised. Additionally, no other independent variable is significant.
For Germany, no ethical score is significant implying that the ethical behaviour of a company does not affect the return. What influences the return more, might be the Debt-to-Equity Ratio that is positive (3.1907) and significant on a 10% level for AR (NS) and also for CAR (NS) (142.3327). This indicates that a higher debt-to-equity ratio leads to higher return. Also significant for Germany is the revenue for AR (PS) with a coefficient of -1.4136 on a 10% level. This indicates that the higher the revenue is the lower is the return.

For China, the coefficients for ES and PS are always negative, while the NS is 0.0000. However, no coefficient is statistically significant.
When looking at all countries combined, for AR and BHAR the ES and PS coefficients are always negative but close to zero, while the NS coefficient is also negative but higher (AR_NS: -2.5077, BHAR_NS: -1.0148). For CAR, ES and PS are positive, while NS is negative. ES and PS are significant on a 1% level. This indicates that ethical behaviour is rewarded with a higher return.
The other significant ethical score is found for AR_NS. The coefficient is negative (-2.5077) indicating a penalty for negative ethical behaviour with a 10% significance level.
Therefore, the health care industry rewards good ethical behaviour and penalises negative ethical behaviour with lower return.
For the health care industry, also the revenue is significant using CAR. The coefficient is always negative and significant on a 1% level for ES and PS and significant on a 5% level for NS. All three values are negative. Indicating that a higher revenue leads to lower return, which is counterintuitive.

In conclusion, the health care industry in the USA penalises unethical behaviour with lower return. This is in line with the results for all countries combined, where ethical behaviour is rewarded with higher return and unethical behaviour is penalised by lower return. The ethical behaviour is next to the revenue the main influence on the return.

Table 26 - Health Care Regression

			USA		GERMANY		CHINA		Combined	
			Coefficient	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
AR	HC -	Intercept	18,1566 **	0.0220	1.0764	0.7365	11.2566	#ZAHL!	7.4956 **	0.0180
	ES	ES	-0.5613	0.2994	0.1627	0.6261	-1.8761	#ZAHL!	-0.3403	0.2764
		LOG Rev	-5.5558	0.2092	-1.1017	0.1522	4.8201	#ZAHL!	-1.1236	0.4892
		PM Aver	-18.9738	0.3841	0.0869	0.4415	-26.3271	#ZAHL!	0.1514	0.6682
		DtE	1.1630	0.5176	2.4581	0.3002	-8.3444	#ZAHL!	1.3706	0.3029
		R-Square	0.1731		0.3421		1.0000		0.0719	
		F-Score	1.0989		1.1701		#ZAHL!		0.7751	
		Sign. F	0.3830		0.3858		#ZAHL!		0.5479	
	HC -	Intercept	20.2388 **	0.0118	-0.7052	0.8399	13.1327	#ZAHL!	8.9208 ***	0.0086
	PS	PS	-0.7767	0.1395	0.3282	0.3427	-1.8761	#ZAHL!	-0.4728	0.1331
		LOG Rev	-4.4822	0.3078	-1.4136 *	0.0968	4.8201	#ZAHL!	-0.6602	0.6908
		PM Aver	-19.4510	0.3588	0.1067	0.3370	-26.3271	#ZAHL!	0.1153	0.7414
		DtE	1.3303	0.4465	1.7733	0.4373	-8.3444	#ZAHL!	1.5260	0.2472
		R-Square	0.2165		0.3914		1.0000		0.0968	
		F-Score	1.4509		1.4468		#ZAHL!		1.0714	
		Sign. F	0.2525		0.2956		#ZAHL!		0.3834	
	HC -	Intercept	19.5276 ***	0.0051	2.2106 *	0.0636	6.2494	#ZAHL!	6.8234 ***	0.0022
	NS	NS	-5.6345 **	0.0243	0.4370	0.4691	0.0000	#ZAHL!	-2.5077 *	0.0757
		LOG Rev	-2.8725	0.4882	-1.0884	0.1208	-1.5383	#ZAHL!	-0.4939	0.7627
		PM Aver	-29.2190	0.1512	0.0734	0.4853	-17.2650	#ZAHL!	0.1737	0.6093
		DtE	2.9439	0.1042	3.1907 *	0.0978	-10.3231	#ZAHL!	2.2078	0.1124
		R-Square	0.3194		0.3639		1.0000		0.1171	
		F-Score	2.4641		1.2872		#ZAHL!		1.3261	

		Sign. F	0.0766		0.3444		#ZAHL!		0.2769	
BHAR	HC -	Intercept	34.4647 ***	0.0013	-4.3382	0.6908	17.5795	#ZAHL!	16.0429 ***	0.0075
	ES	ES	-0.0581	0.9318	0.6628	0.5611	-4.8477	#ZAHL!	-0.3055	0.6004
		LOG Rev	-4.4104	0.4276	-2.5254	0.3197	17.6226	#ZAHL!	4.2598	0.1660
		PM Aver	-4.8374	0.8602	0.2301	0.5466	-23.2926	#ZAHL!	0.0223	0.9731
		DtE	0.3984	0.8609	4.8507	0.5399	-7.3715	#ZAHL!	2.7162	0.2767
		R-Square	0.0357		0.2114		1.0000		0.1225	
		F-Score	0.1945		0.6031		#ZAHL!		1.3960	
		Sign. F	0.9386		0.6702		#ZAHL!		0.2528	
	HC -	Intercept	36.1852 ***	0.0011	-7.6913	0.5308	22.4271	#ZAHL!	16.7936 ***	0.0091
	PS	PS	-0.2851	0.6691	0.9452	0.4286	-4.8477	#ZAHL!	-0.3635	0.5381
		LOG Rev	-3.6610	0.5186	-3.2063	0.2578	17.6226	#ZAHL!	4.5395	0.1546
		PM Aver	-4.5401	0.8679	0.2671	0.4843	-23.2926	#ZAHL!	0.0035	0.9958
		DtE	0.4203	0.8523	3.7121	0.6366	-7.3715	#ZAHL!	2.8363	0.2571
		R-Square	0.0439		0.2377		1.0000		0.1248	
		F-Score	0.2412		0.7014		#ZAHL!		1.4262	
		Sign. F	0.9118		0.6103		#ZAHL!		0.2430	
	HC -	Intercept	39.0125 ***	0.0001	1.2293	0.7456	4.6414	#ZAHL!	14.4471 ***	0.0009
	NS	NS	-5.5487 *	0.0804	0.6134	0.7695	0.0000	#ZAHL!	-1.0148	0.7036
		LOG Rev	-0.5795	0.9139	-2.0209	0.3889	1.1929	#ZAHL!	4.2206	0.1850
		PM Aver	-13.3470	0.6064	0.1660	0.6508	0.1234	#ZAHL!	0.0657	0.9200
		DtE	2.0201	0.3805	7.7435	0.2340	-12.4843	#ZAHL!	3.0570	0.2501
		R-Square	0.1690		0.4332		1.0000		0.1196	
		F-Score	1.0674		0.5199		#ZAHL!		1.3586	
		Sign. F	0.3973		0.7239		#ZAHL!		0.2654	
CAR	HC -	Intercept	7.7873 **	0.0132	57.0372	0.6850	5.6918	#ZAHL!	4.1410	0.8776
	ES	ES	-0.2247	0.2893	4.7987	0.7424	-0.7812	#ZAHL!	8.6809 ***	0.0027
		LOG Rev	-2.5898	0.1382	-43.8127	0.1900	2.0074	#ZAHL!	-51.6922 ***	0.0007
		PM Aver	-7.6253	0.3724	3.2228	0.5132	-10.9487	#ZAHL!	3.3778	0.2798
		DtE	0.4813	0.4946	120.2540	0.2516	-3.4844	#ZAHL!	2.4365	0.8340
		R-Square	0.2024		0.3316		1.0000		0.3250	
		F-Score	1.3326		1.1162		#ZAHL!		4.8141	
		Sign. F	0.2907		0.4067		#ZAHL!		0.0029	
	HC -	Intercept	8.5664 ***	0.0072	-15.9191	0.9180	6.4729	#ZAHL!	-2.7090	0.9257
	PS	PS	-0.3036	0.1411	11.7288	0.4403	-0.7812	#ZAHL!	8.6665 ***	0.0032
		LOG Rev	-2.1831	0.2087	-56.0935	0.1315	2.0074	#ZAHL!	-55.9059 ***	0.0005
		PM Aver	-7.8289	0.3469	4.0390	0.4092	-10.9487	#ZAHL!	3.5385	0.2613
		DtE	0.5482	0.4245	91.4226	0.3693	-3.4844	#ZAHL!	-0.4428	0.9698
		R-Square	0.2420		0.3688		1.0000		0.3199	
		F-Score	1.6760		1.3144		#ZAHL!		4.7034	
		Sign. F	0.1931		0.3355		#ZAHL!		0.0033	
	HC -	Intercept	8.1762 ***	0.0036	85.5249 *	0.0931	3.6069	#ZAHL!	76.7147 ***	0.0008
	NS	NS	-2.0758 **	0.0359	18.9875	0.4701	0.0000	#ZAHL!	-5.0391	0.7183
		LOG Rev	-1.6444	0.3226	-45.7770	0.1325	-0.6401	#ZAHL!	-34.0083 **	0.0445
		PM Aver	-11.4571	0.1579	2.8761	0.5293	-7.1754	#ZAHL!	1.5046	0.6608
		DtE	1.1422	0.1133	142.3327 *	0.0911	-4.3083	#ZAHL!	4.0055	0.7718
		R-Square	0.3203		0.3633		1.0000		0.1549	
		F-Score	2.4739		1.2837		#ZAHL!		1.8333	
		Sign. F	0.0757		0.3456		#ZAHL!		0.1414	

Table 26 presents the regression results of the return and the independent variables, including the ethical score for the HealthCare (HC) industry.

The dependent variable is the return, which is measured in three ways: the average abnormal return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR). The return covers the time period from 2010 to 2017.

The independent variables are defined as follows: Ethical Score (ES) (as the difference between the Positive Score and the Negative Score), Positive Score (PS), Negative Score (NS), the log revenue [in bn $] 2010 (LOG Rev), profit margin averaged over the time frame from 2010 to 2017 (PM Aver), and Debt-to-Equity in 2010 (DtE).

The regression is run for each country, namely USA, Germany, and China, and also combined. The combined results are the data for each country in the consumer discretionary industry merged.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

6.2.2.6 Industrials

The Industrial Goods Industry is defined as “companies that convert unfinished goods into finished durables used to manufacture other goods or provide services. A product which lasts 1–3 years is considered "durable." (Vanguard)

With a rising consciousness for supply chains with its climate risks, carbon footprints, and supply chain diversity, and a growing demand for making ESG issues a priority (RSM, 2020), a positive impact of the ethical behaviour on the (stock) return is expected.

Therefore, the following hypothesis is proposed:

> H1: For the industrials industry, the Ethical Score has a positive impact on the share price return

For the USA, the ethical scores for PS (AR_PS: 0.3927, CAR_PS: 0.1618) and NS (AR_NS: 1.5221, CAR_NS: 0.6411) are positive, while for ES they are negative but close to zero (AR_ES: -0.2461, CAR_ES: -0.1058) when using AR and CAR. For BHAR, they are all positive but close to zero (BHAR_ES: 0.3134, BHAR_PS: 0.6547, BHAR_NS:0.2485).
The NS for AR is positive (1.5221) and significant on a 10% level and is also positive (0.6411) and significant on a 10% level using CAR as the return metric.
This indicates the negative ethical behaviour has a positive effect on the return. Negative ethical behaviour is rewarded in the USA for the industrial goods industry.
Other significant influences on the return are the revenue and the Debt-to-Equity Ratio.
The coefficient for the revenue is negative and significant on a 10% level for AR_ES (-13.0269), AR_PS (-14.4259), AR_NS (-15.2338) and CAR_ES (-5.7369), CAR_PS (-5.9020), and CAR_NS (-6.2456**). This implies that there is a negative link between revenue and return. The higher the revenue, the lower the return.
For AR_ES (0.8662*) and AR_PS (0.8230*), AR_NS (0.9373*), BHAR_PS (1.1613*), BHAR_NS (1.2054**), CAR_ES (0.3567*), CAR_PS (0.3384*), CAR_NS (0.3964**) the Debt-to-Equity Ratio is significant on a 10% and 5% level. This indicates a positive impact between the Debt-to-Equity Ratio and the return.

For Germany, the ES and PS have a positive sign, while the NS has a negative for all three return metrics. However, all of them are between zero and one, indicating impact of the

ethical behaviour on a company and its return. All of the ethical scores are insignificant. This can be an indicator that other factors drive the return of the industrial goods sector.
Using the BHAR, the revenue is also significant for all three ethical scores on a 10% level. All three are negative (BHAR_ES: -3.3649, BHAR_PS: -3.3286, BHAR_NS: -2.8987) implying a negative impact of the revenue of a company on its return. That smaller companies achieve higher financial return is also evidenced by UBS (2020).[10]

China shows a very similar picture like Germany. There is no significant ethical score[11] and the only significant independent variable is the revenue which also always has a negative sign. It is significant on a 10% level for all three ethical score using AR and CAR as the return metric (AR_ES: -1.2682, AR_PS: -1.2619, AR_NS: -1.2829; CAR_ES: -0.5272, CAR_PS: -0.5246, CAR_NS: -0.5338).
This indicates that the industrial goods industry is not driven by ethical behaviour, in both ways negative and positive, but rather by the size of the company measured in revenue.

When looking at all three countries combined, it is also found that all ethical scores are not significant. The only exception is the Negative Score using BHAR with a coefficient of 2.0537 on a 5% significance level. This implies that negative ethical behaviour is rewarded by a higher return. However, as it is the only significant ethical coefficient, it appears that other factors might be the driver of the return of the industrial goods industry.
The revenue is again negative and significant for all three, ES (-1.8490**), PS. (-1.8416**), and NS (-2.0503**) using AR. And when looking at the Debt-to-Equity Ratio, it is visible that it is also significant for AR_ES (0.4329*), AR_PS (0.4269*), AR_NS (0.4004*), BHAR_ES (2.0961***), BHAR_PS (2.0199***), and BHAR_NS (2.0000***). This indicates that the leverage ratio is also an important driver of the return. The higher the Debt-to-Equity Ratio is, the lower the return.

In conclusion, for the USA using AR negative ethical behaviour is significant and rewarded by higher return as well as for all three countries combined using BHAR negative behaviour is significant and rewarded. However, it appears that ethical behaviour is not the main driver of the return of the industrial goods industry. Revenue and Debt-to-Equity Ratio show to be

[10] https://www.ubs.com/global/en/asset-management/insights/asset-class-research/equities-research/2020/smaller-companies.html
[11] All ES, PS, and NS have a negative sign regardless of the return metric used.

the significant main drivers. The lower the return and the higher the Debt-to-Equity Ratio, the higher the return for the industry.

Table 27 Industrials Regression

			USA		GERMANY		CHINA		Combined	
			Coefficient	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
AR	IN -	Intercept	23.0160	0.1178	1.1117	0.6104	5.4997 ***	0.0073	5.3541 ***	0.0097
	ES	ES	-0.2461	0.6068	0.2553	0.2381	-0.1246	0.4376	-0.1354	0.4652
		LOG Rev	-14.0269 *	0.0782	-0.9944	0.2270	-1.2682 *	0.0904	-1.8490 **	0.0410
		PM Aver	-25.2812	0.6408	10.2889	0.2009	-0.2730	0.8932	0.8979	0.7718
		DtE	0.8662 *	0.0519	0.1264	0.9449	1.1132	0.3656	0.4329 *	0.0595
		R-Square	0.2648		0.1726		0.2409		0.0988	
		F-Score	1.5308		1.0953		1.1901		1.7271	
		Sign. F	0.2379		0.3846		0.3552		0.1551	
	IN -	Intercept	16.9015	0.2672	0.6320	0.7951	5.5751 ***	0.0073	4.6671 **	0.0380
	PS	PS	0.3927	0.5242	0.3059	0.2175	-0.1244	0.4181	-0.0496	0.7953
		LOG Rev	-14.4259 *	0.0704	-1.1828	0.1780	-1.2619 *	0.0915	-1.8416 **	0.0442
		PM Aver	-27.2033	0.6141	10.4396	0.1939	-0.3697	0.8521	0.7004	0.8210
		DtE	0.8230 *	0.0611	-0.2499	0.8950	1.1168	0.3632	0.4269 *	0.0652
		R-Square	0.2710		0.1778		0.2437		0.0921	
		F-Score	1.5803		1.1352		1.2081		1.5972	
		Sign. F	0.2249		0.3670		0.3481		0.1861	
	IN -	Intercept	17.9938	0.1596	3.3297 **	0.0105	5.0690 ***	0.0080	3.8140 ***	0.0043
	NS	NS	1.5221 *	0.0602	-0.0672	0.8573	-0.5562	0.6294	0.3887	0.3158
		LOG Rev	-15.2338 **	0.0388	-0.6709	0.4125	-1.2829 *	0.0909	-2.0503 **	0.0260
		PM Aver	-21.8824	0.6557	8.5845	0.2907	-1.2529	0.5576	1.2914	0.6798
		DtE	0.9373 **	0.0232	0.5744	0.7621	1.1363	0.3621	0.4004 *	0.0797
		R-Square	0.3967		0.1159		0.2213		0.1056	
		F-Score	2.7950		0.6883		1.0658		1.8598	
		Sign. F	0.0596		0.6081		0.4075		0.1286	
BHAR	IN -	Intercept	25.7221	0.1288	1.4864	0.7464	5.2355	0.1232	7.3392 *	0.0907
	ES	ES	0.3134	0.5791	0.2614	0.5620	-0.3625	0.2187	0.0484	0.9021
		LOG Rev	-9.6655	-1.1199	-3.3649 *	0.0591	-2.1802	0.1057	-0.2295	0.9036
		PM Aver	86.2690	1.4054	14.7376	0.3802	3.7037	0.3213	-1.5627	0.8126
		DtE	1.1559	2.4187	1.5890	0.6808	3.2572	0.1517	2.0961 ***	0.0000
		R-Square	0.3767		0.2246		0.2859		0.2490	
		F-Score	2.5687		1.5210		1.5014		5.2223	
		Sign. F	0.0756		0.2323		0.2516		0.0011	
	IN -	Intercept	21.5895	0.2158	2.2705	0.6617	5.3868	0.1184	2.5248	0.5852
	PS	PS	0.6547	0.3548	0.1681	0.7460	-0.3519	0.2123	0.5476	0.1737
		LOG Rev	-10.2205	0.2465	-3.3286 *	0.0796	-2.1660	0.1075	-0.5679	0.7629
		PM Aver	86.5852	0.1696	13.9913	0.4077	3.3858	0.3519	-1.4491	0.8228
		DtE	1.1613 **	0.0238	1.5635	0.6984	3.2680	0.1498	2.0199 ***	0.0001
		R-Square	0.3965		0.2158		0.2880		0.2707	
		F-Score	2.7928		1.4450		1.5169		5.8473	
		Sign. F	0.0597		0.2543		0.2473		0.0005	
	IN -	Intercept	27.8639 *	0.0938	3.8004	0.1318	3.6420	0.2567	5.7495 **	0.0315
	NS	NS	0.2485	0.8009	-0.3868	0.6139	-1.0643	0.6203	2.0537 **	0.0106
		LOG Rev	-9.8087	0.2768	-2.8987 *	0.0919	-2.2512	0.1095	-1.1579	0.5280
		PM Aver	88.5443	0.1706	13.1962	0.4244	1.2797	0.7469	1.6077	0.8000
		DtE	1.2054 **	0.0229	2.3601	0.5445	3.3084	0.1627	2.0000 ***	0.0000
		R-Square	0.3669		0.2215		0.2207		0.3233	
		F-Score	2.4627		1.4940		1.0622		7.5250	
		Sign. F	0.0846		0.2399		0.4091		0.0001	
CAR	IN -	Intercept	9.5907	0.1154	-2.3058	0.7674	2.2718 ***	0.0076	0.7778	0.7156
	ES	ES	-0.1058	0.5929	0.5792	0.4501	-0.0522	0.4342	0.1145	0.5593
		LOG Rev	-5.7369 *	0.0814	3.1318	0.2861	-0.5272 *	0.0904	-0.0202	0.9829
		PM Aver	-10.7485	0.6317	8.4186	0.7658	-0.1011	0.9047	-1.0758	0.7430
		DtE	0.3567 *	0.0529	-5.3084	0.4208	0.4721	0.3563	0.0533	0.8242
		R-Square	0.2620		0.1089		0.2417		0.0082	
		F-Score	1.5091		0.6419		1.1951		0.1304	
		Sign. F	0.2438		0.6386		0.3532		0.9707	
	IN -	Intercept	7.0344	0.2648	-2.1279	0.8085	2.3023 ***	0.0076	0.5472	0.8145
	PS	PS	0.1618	0.5263	0.5500	0.5332	-0.0520	0.4161	0.1270	0.5296
		LOG Rev	-5.9020 *	0.0735	2.9318	0.3492	-0.5246 *	0.0915	-0.0804	0.9326
		PM Aver	-11.5620	0.6049	7.8662	0.7820	-0.1422	0.8631	-0.9018	0.7825

	DtE	0.3384 *	0.0627	-5.8049	0.3993	0.4736	0.3540	0.0459	0.8490
	R-Square	0.2672		0.1010		0.2443		0.0091	
	F-Score	1.5496		0.5958		1.2121		0.1332	
	Sign. F	0.2329		0.6737		0.3466		0.9649	
IN -	Intercept	7.4571	0.1576	2.7698	0.5116	2.0859 ***	0.0085	1.7376	0.2106
NS	NS	0.6411 *	0.0554	-0.4684	0.7208	-0.2240	0.6403	0.0229	0.9557
	LOG Rev	-6.2456 **	0.0398	4.0000	0.1692	-0.5338 *	0.0908	-0.0103	0.9915
	PM Aver	-9.3275	0.6449	4.7533	0.8655	-0.5046	0.5701	-0.8776	0.7925
	DtE	0.3864 **	0.0232	-3.9816	0.5503	0.4815	0.3536	0.0635	0.7919
	R-Square	0.3988		0.0895		0.2208		0.0028	
	F-Score	2.8187		0.5160		1.0629		0.0448	
	Sign. F	0.0581		0.7248		0.4088		0.9961	

Table 27 presents the regression results of the return and the independent variables, including the ethical score for the Industrials (IN) industry.

The dependent variable is the return, which is measured in three ways: the average abnormal return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR). The return covers the time period from 2010 to 2017.

The independent variables are defined as follows: Ethical Score (ES) (as the difference between the Positive Score and the Negative Score), Positive Score (PS), Negative Score (NS), the log revenue [in bn $] 2010 (LOG Rev), profit margin averaged over the time frame from 2010 to 2017 (PM Aver), and Debt-to-Equity in 2010 (DtE).

The regression is run for each country, namely USA, Germany, and China, and also combined. The combined results are the data for each country in the consumer discretionary industry merged.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

6.2.2.7 Information Technology

The Information Technology Industry is defined as “Companies that serve the electronics and computer industries or that manufacture products based on the latest applied science.” (Vanguard)

As the IT industry consists of many consumer goods such as personal computers, mobile devices, wearable technology etc. and business goods such as enterprise software, logistic systems, database protection etc., consumer as well as businesses can incorporate ethical values in their purchase process. Therefore, it is excepted that a positive impact of the ethical score and the stock return exists.

Therefore, the following hypothesis is proposed:

> H1: For the information technology industry, the Ethical Score has a positive impact on the share price return

For the USA, for all three ethical score (ES, PS, and NS) all signs are negative regardless of the return metric. Additionally, none of them is statistically significant. Furthermore, the R^2 is low for all three regressions. As the ethical behaviour appears not to be the main driver of the IT industry, a further look into other independent variables has been undertaken. It is noticeable, that for AR and CAR for all three ethical scores, the revenue is negative and

significant on a 5% or 1% level. This indicates that the higher the revenue the lower the return. This coincides with the evidence from UBS (2020), whereas smaller companies have higher returns.

When looking at Germany, the ES and PS are positive while the NS is zero for AR and CAR. When using BHAR, ES and PS are negative but close to zero (BHAR_ES: -0.7340, BHAR_PS: -0.7340), while NS also is zero. All of the ethical scores are not statistically significant; indicating that other variable is the main driver for the return. However, the only significant coefficient for the Debt-to-Equity Ratio is the PS using BHAR with a coefficient of 0.7647. This indicates that a tilt towards more equity results into higher return.
The ethical behaviour, however, appears not to be an influential factor in the information technology industry in Germany.

The coefficients for the ethical scores in China are negative regardless of the return metric, except when using BHAR, the ES is positive with a value of 0.2731. Also, the values for ES and PS rank between -0.7821 and -0. 2019, while the coefficients for NS are bigger. For AR and CAR, the Negative Scores are statistically significant and negative (AR_NS: -7.8611**, CAR_NS: -3.1572*). This indicates that negative ethical behaviour is penalised. A higher negative score results into lower return.
Other variables that also have an influence on the return are the Profit Margin (AR_NS: -20.4770**, CAR_NS: -8.0413**). This implies that the lower the profit margin the higher the return.
It appears that the ethical behaviour and the profit margin are the main factors that influence the return in the information technology sector in China.

When looking at all three countries combined, it is noticeable that the signs for the ethical scores are all negative regardless of the return metric, except for BHAR. There, the ES and PS are positive. BHAR_ES is also the only ethical score that is statistically significant with a coefficient of 6.4209*. This implies that ethical behaviour results into higher return and therefore is rewarded. Other factors that are statistically significant for the return are the revenue that has a negative sign and is significant for all three scores (CAR_ES: -75.6640***, CAR_PS: -77.0065***, CAR_NS: -51.4249***). This implies that a lower revenue explains a higher return. Furthermore, the Profit Margin is also significant. (CAR_ES: -165.3347*,

CAR_NS: -193.1466*). This is similar to the results in China: The lower the Profit Margin, the higher the return.

In conclusion, the information technology industry in China and for all three countries combined rewards ethical behaviour and penalises non-ethical behaviour. This matches the expectation. Other influential factors are revenue and profit margin, where lower revenue and lower profit margin lead to higher returns.

Table 28 - Information Technology Regression

			USA		GERMANY		CHINA		Combined	
			Coefficient	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
AR	IT -	Intercept	36.0713 ***	0.0073	3.3939	0.2898	15.1427 ***	0.0038	11.2458 **	0.0128
	ES	ES	-0.1651	0.8516	0.1025	0.7166	-0.5953	0.2989	-0.4950	0.3042
		LOG Rev	-19.4571 **	0.0235	-0.9069	0.5551	-0.2745	0.9136	-0.5067	0.8280
		PM Aver	-9.8903	0.7332	3.1869	0.7823	-13.4989	0.1490	6.0818	0.6260
		DtE	.2.6477	0.3945	1.5837	0.4707	-8.0564	0.2939	-2.0662	0.3196
		R-Square	0.4567		0.0637		0.4787		0.0913	
		F-Score	2.9420		0.1700		1.8369		1.0549	
		Sign. F	0.0586		0.9488		0.2152		0.3907	
	IT -	Intercept	36.4850 ***	0.0072	3.3939	0.2898	16.2889 ***	0.0024	11.8213 **	0.0120
	PS	PS	-0.2440	0.7928	0.1025	0.7166	-0.7821	0.1758	-0.5588	0.2629
		LOG Rev	-19.0656 **	0.0287	-0.9069	0.5551	0.1448	0.9527	-0.2198	0.9274
		PM Aver	-9.6325	0.7399	3.1869	0.7823	-14.4531	0.1120	5.7098	0.6471
		DtE	-2.7103	0.3860	1.5837	0.4707	-7.1991	0.3264	-2.1432	0.3017
		R-Square	0.4581		0.0637		0.5284		0.0956	
		F-Score	2.9583		0.1700		2.2406		1.1100	
		Sign. F	0.0578		0.9488		0.1540		0.3645	
	IT -	Intercept	35.7803 ***	0.0048	4.3739 **	0.0172	14.7030 ***	0.0004	8.2471 ***	0.0086
	NS	NS	-3.2189	0.6329	0.0000	#ZAHL!	-7.8611 **	0.0470	-1.8514	0.6613
		LOG Rev	-19.8052 ***	0.0092	-0.4972	#ZAHL!	-0.5698	0.7706	-1.5233	0.4700
		PM Aver	-8.2674	0.7758	3.2187	0.7811	-20.4770 **	0.0287	6.4592	0.6105
		DtE	-3.0371	0.3461	1.2383	0.5308	-5.2916	0.4112	-2.2157	0.3048
		R-Square	0.4644		0.0559		0.6435		0.0722	
		F-Score	3.0348		0.1480		3.6102		0.8169	
		Sign. F	0.0537		0.9597		0.0577		0.5216	
BHAR	IT -	Intercept	46.3505	0.1388	10.3994	0.3862	27.9817	0.2073	14.4786	0.1933
	ES	ES	-0.2402	0.9155	-0.7340	0.4957	0.2731	0.9274	-0.1729	0.8866
		LOG Rev	-5.6669	0.7773	1.0320	0.8579	-1.0348	0.9398	4.6826	0.4294
		PM Aver	19.3100	0.7953	28.6768	0.5146	-45.7827	0.3468	28.2145	0.3735
		DtE	-2.0520	0.7948	0.7646	0.9256	-36.1598	0.3793	3.1524	0.5472
		R-Square	0.0287		0.0990		0.1896		0.0727	
		F-Score	0.1033		0.2748		0.4679		0.8238	
		Sign. F	0.9795		0.8876		0.7584		0.5175	
	IT -	Intercept	47.7449	0.1318	10.3994	0.3862	30.3433	0.1937	15.5703	0.1799
	PS	PS	-0.5162	0.8286	-0.7340	0.4957	-0.2019	0.9480	-0.3192	0.7996
		LOG Rev	-4.3410	0.8319	1.0320	0.1838	-0.1483	0.9915	5.1525	0.4019
		PM Aver	20.0161	0.7880	28.6768	0.6757	-46.4800	0.3430	27.7517	0.3819
		DtE	-2.2241	0.7791	0.7646 *	0.0957	-34.9287	0.3993	3.0920	0.5552
		R-Square	0.0312		0.0990		0.1892		0.0737	
		F-Score	0.1128		0.2748		0.4666		0.8358	
		Sign. F	0.9759		0.8876		0.7593		0.5102	
	IT -	Intercept	47.2393	0.1031	3.3852	0.5736	37.5144	0.0344	15.5127 **	0.0427
	NS	NS	-13.2107	0.4417	0.0000	#ZAHL!	-26.4375	0.2202	-9.4260	0.3707
		LOG Rev	-5.0981	0.7633	-1.9005	#ZAHL!	2.1209	0.8546	6.0443	0.2504
		PM Aver	26.6151	0.7174	28.4492	0.5211	-71.6540	0.1550	24.7866	0.4320
		DtE	-3.8086	0.6366	3.2372	0.6643	-21.4779	0.5694	2.0405	0.7018
		R-Square	0.0695		0.0843		0.5793		0.0900	
		F-Score	0.2615		0.2302		1.0102		1.0389	
		Sign. F	0.8978		0.9152		0.4565		0.3986	
CAR	IT -	Intercept	15.9489 ***	0.0035	131.1655	0.3227	6.0462 ***	0.0037	82.7589 **	0.0194
	ES	ES	-0.0895	0.7977	3.4268	0.7700	-0.2285	0.3143	6.4209 *	0.0939
		LOG Rev	-6.9552 **	0.0377	-37.2097	0.5599	-0.1371	0.8915	-75.6640 ***	0.0002
		PM Aver	-13.1670	0.2617	295.5718	0.5404	-5.2275	0.1582	-165.3347 *	0.0974
		DtE	-1.3862	0.2647	77.6026	0.3972	-3.2200	0.2912	1.3358	0.9345

	R-Square	0.4512		0.0993		0.4772		0.4144	
	F-Score	2.8774		0.2756		1.8257		7.4309	
	Sign. F	0.0624		0.8871		0.2173		0.0001	
IT -	Intercept	16.0965 ***	0.0035	131.1655	0.3227	6.4999 ***	0.0024	81.0273 **	0.0280
PS	PS	-0.1168	0.7510	3.4268	0.7700	-0.3029	0.1862	6.4500	0.1051
	LOG Rev	-6.8162 ***	0.0049	-37.2097	0.5599	0.0289	0.9763	-77.0065 ***	0.0002
	PM Aver	-13.0592	0.2654	295.5718	0.5404	-5.5991	0.1202	-162.6530	0.1041
	DtE	-1.4124	0.2584	77.6026	0.3972	-2.8833	0.3233	2.1188	0.8966
	R-Square	0.4526		0.0993		0.5258		0.4119	
	F-Score	2.8939		0.2756		2.2177		7.3532	
	Sign. F	0.0614		0.8871		0.1569		0.0001	
IT -	Intercept	15.6638 ***	0.0025	163.9140 **	0.0273	5.9205 ***	0.0003	135.0586 ***	0.0000
NS	NS	-0.9193	0.7312	0.0000	#ZAHL!	-3.1572 **	0.0427	-32.5007	0.3367
	LOG Rev	-7.2484 **	0.0148	-23.5176	#ZAHL!	-0.2365	0.7571	-51.4249 ***	0.0036
	PM Aver	-12.7661	0.2787	296.6347	0.5394	-8.0413 **	0.0283	-193.1466 *	0.0609
	DtE	-1.4821	0.2517	66.0581	0.4224	-2.0846	0.4082	-3.5486	0.8356
	R-Square	0.4533		0.0973		0.6532		0.3872	
	F-Score	2.9021		0.2695		3.7669		6.6353	
	Sign. F	0.0609		0.8910		0.0523		0.0003	

Table 28 presents the regression results of the return and the independent variables, including the ethical score for the Informational Technology (IT) industry.

The dependent variable is the return, which is measured in three ways: the average abnormal return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR). The return covers the time period from 2010 to 2017.

The independent variables are defined as follows: Ethical Score (ES) (as the difference between the Positive Score and the Negative Score), Positive Score (PS), Negative Score (NS), the log revenue [in bn $] 2010 (LOG Rev), profit margin averaged over the time frame from 2010 to 2017 (PM Aver), and Debt-to-Equity in 2010 (DtE).

The regression is run for each country, namely USA, Germany, and China, and also combined. The combined results are the data for each country in the consumer discretionary industry merged.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

6.2.2.8 Telecommunication

The Telecommunication Industry is defined as "Companies that provide telephone, data-transmission, cellular, or wireless communication services." (Vanguard) It entails telephone (both wired and wireless) operators, satellite companies, cable companies, and internet service providers and consists of three sub-sectors (in descending order regarding size): telecom equipment, telecom services, and wireless communication (Beers, 2018).
As the sector is increasingly going green (CRN, 2016), it is expected that a positive impact of ethical behaviour on the return can be found.

This leads to the following hypothesis:

> H1: For the telecommunication industry, the Ethical Score has a positive impact on the share price return

As seen table 5.8., for the USA, all three ethical scores, ES, PS and NS, are positive regardless of the return metric. The ES (0.4283**) and PS (0.3802**) using AR are significant on a 5% level. As both coefficients are positive but close to zero, it indicates that with an increasing ethical behaviour and therefore score, the return is positively affected but the effect is close to zero.
It gets more instructive when the CAR as the return metric is added. ES and PS are again significant on a 5% level but the coefficients are higher, ES: 1.7889**, PS: 1.5882**, than for AR. This indicates that ethical behaviour is rewarded with higher return within the telecommunication industry for the USA. This impact of the ethical score on the return is also enforced by the very high R^2 values.
For the USA, other factors are also a significant influence on the return, namely the revenue and the Debt-to-Equity Ratio. The revenue has a negative impact on the return. For all three return metrics, the revenue for the ES and PS are significant on a 10% or 5% level with all negative signs.[12] This indicates that a higher revenue explains a lower return or vice versa. This is in line with the evidence from UBS (2020).
The significant Debt-to-Equity Ratio can be also found for all three return metrics for ES and PS.[13] This indicates that the higher the Debt-to-Equity Ratio, the higher the return.

[12] AR_ES (-2.8619**), AR_PS. (-2.8688**), BHAR_ES (-33.3850*), BHAR_PS (-33.8261*), CAR_ES (-11.9434**), and CAR_PS (1.5882**)
[13] AR_ES 0.7259**, AR_PS 0.3802**, BHAR_ES 11.9128**, BHAR_PS 10.9332**, CAR_ES 3.0174**, CAR_PS 2.4775**

In summary, within the USA and the telecommunication sector, ethical behaviour is significant and is being rewarded. Next to the ethical behaviour, the revenue and Debt-to-Equity Ratio are also significant.

For Germany, all ES and PS are negative, while the NS is always 0.0000. All of the ethical scores, ES, PS, and NS are never significant. When looking at the other independent variables, it is noteworthy that also no other variable is significant.
It can be concluded that the ethical behaviour of a company has no influence in the telecommunications industry in Germany.

Similar results can be found for China. All ES and PS are positive, while the NS is negative, indicating that ethical behaviour is rewarded and unethical behaviour is penalised. However, none of the ethical scores is statistically significant.
As in Germany, no other independent variable is significant. Therefore, they do not have any significant influence on the return.

When looking at all three countries combined, for AR and CAR, the ES and PS are always positive, while the NS is negative. For BHAR, all three scores are positive. For AR, they are all close to zero (AR_ES: 0.2266, AR_PS: 0.1897, AR_NS: -0.8166), for BHAR only ES and PS are close to zero (BHAR_ES: 0.5686, BHAR_PS: 0.5952, BHAR_NS: 2.1397), while CAR has the highest coefficients (CAR_ES: 3.4118, CAR_PS: 2.0470, CAR_NS: -40.7576). However, as seen in table 5.8. none of the score is statistically significant, indicating no impact of the ethical behaviour on the return of the companies.
However, other independent variables are statistically significant: For AR and BHAR complete, the revenue is significant, as well as for CAR_NS. They are significant on a 5% and 10% level, and are always negative. This is evidence that for lower revenue, and therefore smaller companies, the return is higher. Also significant is the Profit Margin for BHAR ES and PS on a 10% significance level. Both have high, positive coefficients (BHAR_ES: 51.3313*, BHAR_PS: 50.8816*). This indicates that a high profit margin explains high returns within the telecommunication industry. Furthermore, using BHAR the Debt-to-Equity Ratio is significant for all three scores. All three are significant on a 1% significance level and are positive (BHAR_ES: 10.0587***, BHAR_PS:9.9434***, BHAR_NS: 9.1598***). This implicates that a higher debt-to-equity ratio explains higher returns.

In conclusion, for the telecommunication industry, the only significant ethical scores are found for the USA. There, ethical behaviour is rewarded with higher returns.
Other independent variables that have a significant influence on the return, are revenue, Profit Margin, and Debt-to-Equity Ratio, where the revenue has a negative impact, and Profit Margin and Debt-to-Equity Ratio have a positive impact.

Table 29 - Telecommunication Regression

			USA		GERMANY		CHINA		Combined	
			Coefficient	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
AR	TC -	Intercept	-1.9314	0.1144	4.6028	0.4472	3.2570	#ZAHL!	1.1296	0.4735
	ES	ES	0.4283 **	0.0407	-0.2705	0.7524	-0.1198	#ZAHL!	0.2266	0.2914
		LOG Rev	-2.8619 **	0.0477	-0.1947	0.9433	-0.9575	#ZAHL!	-2.0396 **	0.0279
		PM Aver	0.5334	0.8955	14.6991	0.3198	2.1809	#ZAHL!	10.0601	0.1910
		DtE	0.7259 **	0.0244	1.7143	0.8029	1.7648	#ZAHL!	0.2839	0.4355
		R-Square	0.9660		0.3964		1.0000		0.3162	
		Sign. F	0.0668		0.7477		#ZAHL!		0.1949	
		F-Score	14.2256		0.4926		#ZAHL!		1.7340	
	TC -	Intercept	-1.4990	0.1864	4.6028	0.4472	3.6199	#ZAHL!	1.3517	0.3888
	PS	PS	0.3802 **	0.0484	-0.2705	0.7524	-0.1669	#ZAHL!	0.1897	0.3646
		LOG Rev	-2.8688 *	0.0562	-0.1947	0.9433	-0.4414	#ZAHL!	-1.9521 **	0.0356
		PM Aver	-1.9151	0.6654	14.6991	0.3198	-1.4565	#ZAHL!	9.5053	0.2155
		DtE	0.5966 *	0.0346	1.7143	0.8029	0.9140	#ZAHL!	0.2141	0.5378
		R-Square	0.9598		0.3964		1.0000		0.3023	
		Sign. F	0.0788		0.7477		#ZAHL!		0.2196	
		F-Score	11.9378		0.4926		#ZAHL!		1.6251	
	TC -	Intercept	1.0797	0.6524	3.3233	0.4488	2.3348	#ZAHL!	2.5384 **	0.0116
	NS	NS	2.3930	0.2534	0.0000	#ZAHL!	0.4240	#ZAHL!	-0.8166	0.5132
		LOG Rev	-2.2369	0.2682	-0.7129	#ZAHL!	-2.2688	#ZAHL!	-1.3464 **	0.0500
		PM Aver	-16.0784	0.2935	15.8696	0.2806	11.4175	#ZAHL!	8.9530	0.2455
		DtE	-0.1693	0.7454	0.7419	0.9051	3.9266	#ZAHL!	0.3035	0.4899
		R-Square	0.8117		0.3757		1.0000		0.2831	
		F-Score	2.1557		0.4514		#ZAHL!		1.4809	
		Sign. F	0.3411		0.7713		#ZAHL!		0.2574	
BHAR	TC -	Intercept	2.6848	0.8371	9.6702	0.5896	0.4581	#ZAHL!	-3.9743	0.4930
	ES	ES	3.3293	0.1455	-2.9278	0.3067	-0.0420	#ZAHL!	0.5686	0.4675
		LOG Rev	-33.3850 *	0.0850	-1.4837	0.8592	0.2593	#ZAHL!	-7.8118 **	0.0230
		PM Aver	88.4132	0.2646	31.7345	0.4609	-0.7343	#ZAHL!	51.3313 *	0.0771
		DtE	11.9128 **	0.0234	24.7654	0.2866	-0.2840	#ZAHL!	10.0587 ***	0.0000
		R-Square	0.9617		0.5386		1.0000		0.8204	
		F-Score	12.5713		0.8756		#ZAHL!		17.1269	
		Sign. F	0.0750		0.5666		#ZAHL!		0.0000	
	TC -	Intercept	5.9522	0.6353	9.6702	0.5896	0.5852	#ZAHL!	-4.1510	0.4649
	PS	PS	3.0203	0.1339	-2.9278	0.3067	-0.0585	#ZAHL!	0.5952	0.4320
		LOG Rev	-33.8261 *	0.0784	-1.4837	0.8592	0.4401	#ZAHL!	-7.9326 **	0.0208
		PM Aver	69.6567	0.3269	31.7345	0.4609	-2.0079	#ZAHL!	50.8816 *	0.0761
		DtE	10.9332 **	0.0212	24.7654	0.2866	-0.5821	#ZAHL!	9.9434 ***	0.0000
		R-Square	0.9646		0.5386		1.0000		0.8215	
		F-Score	13.6219		0.8756		#ZAHL!		17.2562	
		Sign. F	0.0696		0.5666		#ZAHL!		0.0000	
	TC -	Intercept	29.6084	0.2001	-4.1793	0.6903	0.1350	#ZAHL!	-0.5315	0.8706
	NS	NS	22.7571	0.1865	0.0000	#ZAHL!	0.1485	#ZAHL!	2.1397	0.6361
		LOG Rev	-31.3905	0.1078	-7.0920	#ZAHL!	-0.2001	#ZAHL!	-6.4020 **	0.0138
		PM Aver	-62.4685	0.5468	44.4029	0.2364	2.5015	#ZAHL!	43.6872	0.1254
		DtE	3.8821	0.3794	14.2400	0.3911	0.4733	#ZAHL!	9.1598 ***	0.0000
		R-Square	0.9521		0.6812		1.0000		0.8166	
		F-Score	9.9318		1.6026		#ZAHL!		16.6942	
		Sign. F	0.0936		0.3639		#ZAHL!		0.0000	
CAR	TC -	Intercept	-7.8475	0.1199	390.2264	0.2235	1.3726	#ZAHL!	62.7882	0.3506
	ES	ES	1.7889 **	0.0408	-60.5166	0.2079	-0.0505	#ZAHL!	3.4118	0.7033
		LOG Rev	-11.9434 **	0.0478	83.1648	0.5442	-0.4172	#ZAHL!	-60.2178	0.1110
		PM Aver	2.0403	0.9043	239.5629	0.7153	0.9930	#ZAHL!	303.9143	0.3449
		DtE	3.0174 **	0.0246	264.4260	0.4486	0.7570	#ZAHL!	1.9846	0.8967
		R-Square	0.9658		0.5260		1.0000		0.2407	
		F-Score	14.1341		0.8322		#ZAHL!		1.1888	

	Sign. F	0.0672		0.5839		#ZAHL!		0.3557	
TC -	Intercept	-6.0415	0.1963	390.2264	0.2235	1.5257	#ZAHL!	71.1204	0.2851
PS	PS	1.5882 **	0.0484	-60.5166	0.2079	-0.0704	#ZAHL!	2.0470	0.8139
	LOG Rev	-11.9727 *	0.0562	83.1648	0.5442	-0.1996	#ZAHL!	-56.5906	0.1329
	PM Aver	-8.1872	0.6584	239.5629	0.7153	-0.5399	#ZAHL!	289.1537	0.3652
	DtE	2.4775 **	0.0349	264.4260	0.4486	0.3982	#ZAHL!	0.5261	0.9711
	R-Square	0.9596		0.5260		1.0000		0.2360	
	F-Score	11.8722		0.8322		#ZAHL!		1.1584	
	Sign. F	0.0792		0.5839		#ZAHL!		0.3679	
TC -	Intercept	4.7339	0.6371	103.9605	0.4658	0.9838	#ZAHL!	84.6329 **	0.0327
NS	NS	10.0004	0.2531	0.0000	#ZAHL!	0.1788	#ZAHL!	-40.7576	0.4247
	LOG Rev	-9.3361	0.2683	-32.7563	#ZAHL!	-0.9701	#ZAHL!	-47.5376 *	0.0845
	PM Aver	-67.3738	0.2922	501.4167	0.3029	4.8878	#ZAHL!	320.2955	0.3052
	DtE	-0.7229	0.7400	46.8681	0.8224	1.6685	#ZAHL!	8.7230	0.6247
	R-Square	0.8108		0.7654		1.0000		0.2660	
	F-Score	2.1432		2.4471		#ZAHL!		1.3592	
	Sign. F	0.3426		0.2441		#ZAHL!		0.2944	

Table 29 presents the regression results of the return and the independent variables, including the ethical score for the Telecommunication (TC) industry.

The dependent variable is the return, which is measured in three ways: the average abnormal return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR). The return covers the time period from 2010 to 2017.

The independent variables are defined as follows: Ethical Score (ES) (as the difference between the Positive Score and the Negative Score), Positive Score (PS), Negative Score (NS), the log revenue [in bn $] 2010 (LOG Rev), profit margin averaged over the time frame from 2010 to 2017 (PM Aver), and Debt-to-Equity in 2010 (DtE).

The regression is run for each country, namely USA, Germany, and China, and also combined. The combined results are the data for each country in the consumer discretionary industry merged.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

6.2.2.9 Utilities

The Utilities Industry is defined as "Companies that distribute electricity, water, or gas, or that operate as independent power producers." (Vanguard).

As the utility industry is incorporating ethical values by going green with renewable energy such as wind turbines, solar panels etc., it is expected that ethical behaviour of a company has a positive impact on the return.

A reason for a negative impact on the return could be the higher costs associated with going green.

This leads to the following hypotheses:

H1: For the utilities industry, the Ethical Score has a positive impact on the share price return

H2: For the utilities industry, the Ethical Score has a negative impact on the share price return

For the USA, it is noteworthy that all ES and PS have a positive sign, while the NS always has a negative sign regardless of the return metric used. This can be an indicator that positive ethical behaviour is rewarded with higher return and negative ethical behaviour is penalised with lower return. When looking at the significance level, the hypothesis is supported. The NS for AR is -13.0733 and significant on a 5% level with a very high R^2. The same can be found when using CAR. The NS is also negative with a coefficient of -5.3997 and significant on a 5% level. This is evidence that unethical behaviour leads to a lower return. When looking at the ethical and positive score for BHAR, a positive impact can be found as seen in table 5.9. The coefficient for ES is 1.9570 and significant on a 10% level, while for PS the coefficient is 2.1227 and also significant on a 10% level. Therefore, positive ethical behaviour is rewarded with a higher return.
It can be concluded that within the USA, positive ethical behaviour is rewarded with higher return, while negative ethical behaviour is penalised with lower return.
Other significant variable are the revenue and the Profit Margin. In contrast to other industries, the revenue for the utility industry has a positive sign. For AR_NS the coefficient is 105.3997* and for CAR_NS, it is 43-5364*. This indicates that a higher revenue explains a higher return. Also, a higher Profit Margin explains higher returns: BHAR_ES has a coefficient of 350.3114** and BHAR_PS 376.1969*. This indicates that on a 5% and 10% significance level, the Profit Margin positively explains the return.
A reason for both, the positive link for Revenue and Profit margin, that might be that the utility industry has high fixed costs and high market entry barriers, and therefore bigger companies have better resources to produce higher returns.

Germany always has negative signs for ES and PS and positive signs for NS regardless of the return metric. For AR and BHAR, all coefficients are close to zero while for CAR the coefficients are higher.[14] However, there are no statistically significant coefficients regarding ethical behaviour. Also, there are no other independent variables that have a statistically significant coefficient.
Therefore, within the utility industry in Germany, the ethical behaviour does not have any influence on the return.

[14] AR: ES: -0.2869, PS: -0.1509, NS:0.2370; BHAR: -0.1573, PS: -0.0941, NS: 0.0632; CAR: ES: -11.9247, PS: -6.2343, NS: 10.0675

For China, all three scores, ES, PS and NS, have all negative signs regardless of the return metric. The only significant score is the positive score using BHAR. With -5.6010*, it has a negative sign and is significant on a 10% level. It indicates that negative ethical behaviour explains higher return. All other scores are not statistically significant.
When looking at other independent variables, it is conspicuous that all significant coefficients can be found for BHAR_PS. There, the PS is significant as previously mentioned, the revenue is significant on a 10% level with a positive sign (17.6575*), indicating a positive link between increasing revenue and increasing return. The Profit Margin has a positive sign and is statistically significant also on a 10% level (278.8187*). Additionally, the Deb-to-Equity Ratio is also statistically significant on a 10% level but has a negative sign (-12.9512*). Therefore, the higher the Debt-to-Equity ratio is, the lower is the return.
It can be summarised, that only one ethical score is significant, which indicates that ethical behaviour is penalised with lower return. Other independent variables, like revenue, Profit Margin, and Debt-to-Equity Ratio are also significant for one return metric, namely BHAR.

For all three countries combined using AR, ES and PS are negative but close to zero, while NS is also negative but higher (-5.9594***). For BHAR and CAR, ES and PS are positive, while NS is negative. For AR_NS the coefficient is negative and statistically significant on a 1% level indicating that a negative ethical behaviour explains a lower return.
For BHAR, the ES is significant on a 10% level with a coefficient of 0.7719*. This indicates a small but positive impact of the ethical behaviour on the return. All other ethical scores are statistically insignificant.
Another significant variable is the Debt-to-Equity Ratio, that is significant for AR_ES (-5.0512**), AR_PS (-4.9224**), BHAR_ES (4.2181**), BHAR_PS (3.77716*), CAR_ES (-11.7702***), CAR_PS (-11.5264***), and CAR_NS (-13.1831***). The coefficients are ambiguous, as the sign for AR and CAR for all coefficients is negative, while for BHAR they are positive. The negative coefficients imply a negative impact of the Debt-to-Equity Ratio on the return (higher DtE linked to lower return), while for BHAR a positive impact of the DtE and return is implied (higher DtE linked to higher return).
The other significant variable is the revenue. The coefficient is significant on a 1% level and the sign is always negative.[15] This is evidence that a smaller revenue explains higher return (as found by UBS, 2020).

[15] CAR: ES: -41.6656***, PS: -41.6214***, NS: -46.3052***

In summary, within the utilities industry for the USA and Combined negative ethical behaviour explains a lower return, while positive ethical behaviour explains a higher return. For Germany and China, no significant influence of ethical behaviour on the return can be found.

Other factors that influence the return, are depending on the country, the revenue, the Profit Margin, and the Debt-to-Equity Ratio.

Table 30 - Utilities Regression

			USA		GERMANY		CHINA		Combined	
			Coefficient	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**	**Coefficient**	**p-value**
AR	UT -	Intercept	0.0192	0.9997	5.5348	0.2129	6.6617	0.1647	10.8091	0.1749
	ES	ES	1.1379	0.2918	-0.2869	0.3793	-0.3872	0.3206	-0.4020	0.4013
		LOG Rev	-35.4130	0.4734	-2.0575	0.1946	-0.4862	0.8635	-0.4572	0.8987
		PM Aver	221.7526	0.2151	-8.9939	0.5007	-2.1782	0.8198	-10.6363	0.6321
		DtE	-2.6145	0.8770	0.1552	0.9087	-0.2832	0.8235	-5.0512 **	0.0150
		R-Square	0.7423		0.9838		0.5234		0.3150	
		F-Score	1.4406		15.1883		1.0984		1.9543	
		Sign. F	0.4489		0.1899		0.4649		0.1476	
	UT -	Intercept	8.6443	0.8824	4.2764	0.3249	6.3773	0.1518	13.0056 *	0.0763
	PS	PS	1.1580	0.3451	-0.1509	0.6421	-0.4753	0.2548	-0.6515	0.1455
		LOG Rev	-47.6326	0.4013	-1.5106	0.2775	1.1435	0.7507	0.3780	0.9135
		PM Aver	229.8911	0.2419	-8.0896	0.6592	-3.8338	0.6898	-12.8570	0.5435
		DtE	-2.1799	0.9062	-0.4787	0.7935	-0.4431	0.7227	-4.9224 **	0.0113
		R-Square	0.7048		0.9632		0.5633		0.3712	
		F-Score	1.1940		6.5417		1.2896		2.5093	
		Sign. F	0.5032		0.2843		0.4056		0.0805	
	UT -	Intercept	-65.1095	0.1433	3.2033	0.2989	4.4132	0.4232	0.6365	0.8841
	NS	NS	-13.0733 **	0.0411	0.2370	0.7751	-0.2391	0.9047	-5.9594 ***	0.0010
		LOG Rev	105.3997 *	0.0855	-1.6681	0.3820	-2.0820	0.6961	7.4747 **	0.0353
		PM Aver	52.3051	0.3579	-10.1661	0.6301	0.8292	0.9394	0.2287	0.9885
		DtE	-14.6246	0.1164	-1.2297	0.4080	0.6439	0.5647	-0.9546	0.5606
		R-Square	0.9584		0.9547		0.3731		0.6302	
		F-Score	11.5136		5.2736		0.5952		7.2415	
		Sign. F	0.0815		0.3143		0.6862		0.0014	
BHAR	UT -	Intercept	-11.1973	0.7769	2.5484	0.1731	12.1535	0.4001	-12.4434 *	0.0852
	ES	ES	1.9570 *	0.0705	-0.1573	0.2729	-2.6963	0.4465	0.7719 *	0.0840
		LOG Rev	-46.8381	0.2327	-0.9439	0.1585	-1.1096	0.7186	-0.9077	0.7765
		PM Aver	350.3114 **	0.0539	-0.5113	0.9030	169.4541	0.4640	47.0342	0.1531
		DtE	7.3246	0.5477	0.1191	0.8145	-5.7892	0.5065	4.2181 **	0.0422
		R-Square	0.9220		0.9932		0.6498		0.4272	
		F-Score	5.9081		36.5468		0.9278		2.7967	
		Sign. F	0.1500		0.1234		0.5777		0.0644	
	UT -	Intercept	0.0536	0.9989	1.9498	0.3151	15.8159 *	0.0772	-10.8881	0.1120
	PS	PS	2.1227 *	0.0839	-0.0941	0.5357	-5.6010 *	0.0856	0.6995	0.1069
		LOG Rev	-69.6412	0.1562	-0.6567	0.2803	17.6575 *	0.0982	-1.8686	0.5717
		PM Aver	376.1969 *	0.0607	0.0422	0.9955	278.8187 *	0.0906	43.4676	0.1899
		DtE	9.1257	0.5065	-0.1733	0.8281	-12.9512 *	0.0975	3.7716 *	0.0621
		R-Square	0.9079		0.9781		0.9172		0.4117	
		F-Score	4.9273		11.1825		5.5406		2.6248	
		Sign. F	0.1758		0.2202		0.1587		0.0764	
	UT -	Intercept	-60.3951	0.4941	1.2310	0.3845	0.2125	0.9776	-4.4473	0.4666
	NS	NS	-14.6953	0.1775	0.0632	0.8816	-1.2442	0.7894	-0.4181	0.8432
		LOG Rev	113.5751	0.3201	-0.6385	0.4784	3.2013	0.8418	-0.3291	0.9426
		PM Aver	102.0765	0.4716	-0.7840	0.9385	-23.7221	0.7551	46.7619	0.2132
		DtE	-11.4657	0.5092	-0.6346	0.4119	0.9626	0.4408	3.3884	0.1546
		R-Square	0.8146		0.9620		0.5176		0.2983	
		F-Score	2.1967		6.3306		0.5364		1.5939	
		Sign. F	0.3364		0.2887		0.7321		0.2272	
CAR	UT -	Intercept	0.0088	0.9997	231.6859	0.2143	5.6876	0.4789	66.1940 ***	0.0002
	ES	ES	0.4708	0.2923	-11.9247	0.3835	-0.9312	0.6292	-0.2019	0.8111
		LOG Rev	-14.6264	0.4746	-86.6247	0.1948	-0.4366	0.8031	-41.6656 ***	0.0000

	PM Aver	91.6159	0.2160	-386.0984	0.4949	51.6959	0.6806	86.0573	0.1867
	DtE	-1.0452	0.8813	5.8420	0.9184	-2.0255	0.6735	-11.7702 ***	0.0071
	R-Square	0.7407		0.9837		0.5703		0.8253	
	F-Score	1.4279		15.1260		0.6635		17.7143	
	Sign. F	0.4514		0.1902		0.6748		0.0000	
UT -	Intercept	3.5731	0.8827	179.0750	0.3252	9.1395 *	0.0774	64.3071 ***	0.0001
PS	PS	0.4793	0.3453	-6.2343	0.6463	-2.8121	0.1093	-0.0328	0.9680
	LOG Rev	-19.6848	0.4022	-63.8475	0.2755	8.9680	0.1223	-41.6214 ***	0.0000
	PM Aver	94.9982	0.2426	-348.6935	0.6514	134.1091	0.1239	86.7129	0.1842
	DtE	-0.8641	0.9102	-20.6879	0.7876	-6.6765	0.1185	-11.5264 ***	0.0069
	R-Square	0.7032		0.9634		0.8970		0.8246	
	F-Score	1.1844		6.5882		4.3555		17.6324	
UT -	Sign. F	0.5056		0.2833		0.1953		0.0000	
NS	NS	-5.3997 **	0.0435	10.0675	0.7710	-1.2461	0.5907	3.3754	0.3684
	LOG Rev	43.5364 *	0.0902	-70.7341	0.3767	3.8057	0.6318	-46.3052 ***	0.0000
	PM Aver	21.5566	0.3703	-436.0326	0.6215	-26.6289	0.4922	70.4729	0.2811
	DtE	-6.0124	0.1234	-51.7451	0.4049	0.3194	0.5782	-13.1831 ***	0.0046
	R-Square	0.9558		0.9776		0.5852		0.8341	
	F-Score	10.8024		5.3838		0.7054		18.8557	
	Sign. F	0.0865		0.3113		0.6576		0.0000	
	Sign. F	0.3426		0.2441		#ZAHL!		0.2944	

Table 30 presents the regression results of the return and the independent variables, including the ethical score for the Utilities (UT) industry. The dependent variable is the return, which is measured in three ways: the average abnormal return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR). The return covers the time period from 2010 to 2017.

The independent variables are defined as follows: Ethical Score (ES) (as the difference between the Positive Score and the Negative Score), Positive Score (PS), Negative Score (NS), the log revenue [in bn $] 2010 (LOG Rev), profit margin averaged over the time frame from 2010 to 2017 (PM Aver), and Debt-to-Equity in 2010 (DtE).

The regression is run for each country, namely USA, Germany, and China, and also combined. The combined results are the data for each country in the consumer discretionary industry merged.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

6.2.2.10 Summary

This study aims to reason behind the many contradictory results in literature regarding ethical behaviour and its financial return. The studies undertaken so far find either no significant difference, underperformance, and overperformance of ethically superior stocks. All studies conducted examine whole countries or indices and funds. However, no study incorporated the industry where the stocks are in as a contributor to the results of different returns. This is where this study tries to fill the research gap.

This study suggests that due to the different nature of different industries and the implications for consumer behaviour, the industry is a significant factor for the return of ethically screened companies. The study assumes that each industry has different characteristics and whether ethical behaviour is rewarded, penalised or does have no influence on the return at all depends on the industry it is in. This appears to be true.

For the consumer discretionary industry, only the USA and Germany show a significant influence of the ethical behaviour of a company on the return. The ethical behaviour has, contrary to expectations, a negative impact on the return, which indicates that unethical

behaviour explains a higher return. Additionally, Germany also rewards negative ethical behaviour with higher return. The ethical behaviour, however, has no impact on the return for Chinese companies or when all three countries are combined.
The other return drivers depend on the country: Within the USA, the return is almost always driven by the revenue. The coefficient is negative indicating that a lower revenue explains a higher return. For Germany, the return as well as the PM and the DtE are significant drivers. For China, the ethical behaviour has no impact on the return; however, the PM is always positive and significant. For the combined, the results vary regarding the return metric. When applying AR, the revenue is always significant and negative. For BHAR, the PM is always significant and negative, while for CAR the PM is always significant but positive.
Concluding, it can be found that within the Consumer Discretionary Industry, ethical behaviour is penalised in the USA and Germany and further unethical behaviour is rewarded in Germany. For China and Combined no impact of ethical behaviour on the return can be found. Other variables such as revenue, Profit margin and Debt-to-Equity Ratio are significant drivers for return.

For the consumer staples, ethical behaviour has no influence, neither positive nor negative, regardless of the country or the return metric. Other drivers for combined are revenue, Profit Margin, and Debt-to-Equity.

Within the energy industry, the ethical behaviour of a company also has no impact on the return. For the USA, the significant main driver is the Profit Margin, that has a negative coefficient, and the revenue. When looking at the countries combined, the main driver is the Debt-to-Equity Ratio which is significant and negative using AR as the return metric and significant and positive when using BHAR as the return metric.

The finance industry only shows one significant impact of ethical behaviour on return: When looking at all countries combined, negative ethical behaviour results into higher return and therefore is rewarded. The main other driver for the USA is DtE (negative and significant), for Germany it is mainly Revenue and Debt-to-Equity (both negative), and for China, it is revenue and Profit Margin (both negative). When looking at all three countries combined depending on the return metric used, revenue, Debt-to-Equity as well as Profit margin are significant drivers for return.

For the health care industry, it was expected that ethical behaviour will be rewarded with a higher return. This has been proven correct. For the USA and all three countries combined for NS, negative ethical behaviour is penalised by a lower return, while for all combined ethical behaviour is rewarded with a higher return. Therefore, within the HealthCare industry it pays to be ethical. The main other driver is the revenue with a negative coefficient. Also, for Germany, Debt-to-Equity is also significant and positive.

The industrial industry indicates that unethical behaviour has a positive impact on the return. The USA shows to positive, significant coefficients for NS, while all combined also shows a significant, positive coefficient for negative ethical behaviour. For Germany and China, the other only main driver for the return is the revenue, which negatively impacts the return. For the USA and Combined, the revenue, negatively linked, and the Debt-to-Equity, positively linked, are the main driver for the return.

For the information technology industry, China and Combined show significant results for the impact of ethical behaviour. China indicates that negative ethical behaviour is penalised by a lower return, while combined it is showing that positive ethical behaviour has a positive impact on the return. Negative ethical behaviour is therefore penalised, while positive is rewarded.

The telecommunication industry in the USA shows a positive impact of ethical behaviour on the return. Being ethical pays in this industry. Other drivers within the USA are revenue (negative impact) and DtE (positive impact).
Germany and China do not show any sign of impact on the return by ethical behaviour or any other independent variable. When looking at the combined it is clear that the higher the revenue, the lower the return and the higher the DtE, the higher the return. When using BHAR, the Profit Margin is also positive and significant.

Within the utility sector it is expected that negative ethical behaviour is penalised while positive ethical behaviour is rewarded. This is true for the USA and Combined, while Germany showed no significant impact. However, China shows a significant, negative impact of ethical behaviour on the return.

For the USA, other drivers are the Profit Margin using BHAR_ES and BHAR_PS in the regression and Revenue using AR_NS and CAR_NS. Within China, the Revenue and Profit Margin have a significant positive influence on the return, while DtE has a negative.
The combined shows a significant negative DtE ratio using AR and CAR, while using BHAR the DtE is significant but positive. Furthermore, the revenue is significant and negative using CAR, while significant and positive when using AR.

In conclusion, the results whether ethical behaviour, positive or negative, has an impact on the return vary across the industries. This confirms the hypothesis that the industry, the company is in, plays a significant role whether ethical behaviour is significant or not and whether it is rewarded or penalised.
These findings might be an explanation for the mixed results in literature.

To sum it up, the Consumer Staples and Energy industry shows no impact of ethical behaviour on the return.
The Consumer Discretionary, Finance, and Industrials industry indicate that ethical behaviour is penalised while unethical behaviour is financially rewarded.
The HealthCare, Information Technology, Telecommunication, and Utility industry mainly show that ethical behaviour is financially rewarded while unethical behaviour is penalised.[16]

The table below summarises the expectations and the results of each industry in each country with different return metrics used and all three scores.

[16] However, these results are not valid in every of the three countries.

Table 31 - Summary of industry regression results covering the effects of ethical behaviour on the return.

Industry		USA				GER				CHI				COM			
		Ex	Evidence			Ex	Evidence			Ex	Evidence			Ex	Evidence		
			AR	BHAR	CAR		AR	BHAR	CAR		AR	BHAR	CAR		AR	BHAR	CAR
CD	ES	+	-1.4830 **	-2.7767 **		+	-0.1739 *	-0.3125 **	-7.2925 *	+				+			
		OD	Rev (-)		Rev (-)		Rev (⊖), DtE (⊕)	Rev (-), PM (⊖)	Rev (-), DtE (+)		PM (+)	PM (+)	PM (+)		Rev (-)	PM (-)	PM (+)
	PS	+	-1.5812 **	-2.8728 *	-0.5030 *	+		-0.2777 **		+				+			
		OD	Rev (-)	Rev (-)	Rev (-)		Rev (⊖), DtE (⊕)	Rev (-), PM (⊖)	Rev (-), DtE (+)		PM (+)	PM (+)	PM (+)		Rev (-)	PM (-)	PM (+)
	NS	-				-	0.9572 **	1.5420 **	39.7538 **	-				-			
		OD	Rev (-)	Rev (-)	Rev (-)		Rev (-), DtE(⊕)	Rev (-), DtE(⊕)	Rev (-), DtE (+)		PM (+)	PM (+)	PM (+)		Rev (-)	PM (-)	PM (+)
CS	ES	+				+				+				+			
		OD														Rev (+)	Rev (-), PM (+), DtE (-)
	PS	+				+				+				+			
		OD														Rev (+)	Rev (-), PM (+), DtE (-)
	NS	-				-				-				-			
		OD															PM (+), DtE (-)
EN	ES																
		OD	PM (-)		PM (-)										DtE (-)	DtE (+)	
	PS																
		OD	Rev(⊖), PM (-)		Rev (-), PM (-)											DtE (+)	
	NS																
		OD	PM (-)		PM (-)											DtE (+)	
FI	ES																
		OD	DtE(⊖)	DtE (-)	DtE (⊖)		Rev(⊖), DtE (⊖)	Rev (-)	Rev (-), DtE (-)		Rev (-), PM (-)	PM (-)	Rev(⊖), PM (-)		Rev(⊖), DtE (⊖)	PM (⊖)	Rev (-), PM (+), DtE (-)
	PS																
		OD	DtE(⊖)	DtE (-)	DtE (⊖)		DtE (⊖)		DtE (-)		Rev (-), PM (-)	PM (-)	Rev(⊖), PM (-)		Rev(⊖), DtE (⊖)	PM (⊖)	Rev (-), PM (+), DtE (-)
	NS																13.3673 **
		OD		DtE (-)	DtE (⊖)		Rev(⊖), DtE (⊖)	Rev (-)	Rev (-), DtE (-)		Rev (-), PM (-)	PM (-)	Rev(⊖), PM (-)		Rev(⊖), DtE (⊖)		Rev (-), PM (+), DtE (-)
HC	ES	o															8.6809 ***
		OD															Rev (-)
	PS	o															8.6665 ***

		OD					Rev (-)												Rev (-)
	NS	o	-5.6345***	-5.5487**	-2.0758**											-2.5077*			
		OD					DtE (+)		DtE (+)										Rev (-)
IN	ES																		
		OD	Rev (-), DtE (⊕)		Rev (-), DtE (⊕)			Rev (-)			Rev (-)		Rev (⊖)			Rev (-), DtE (⊕)	DtE (+)		
	PS																		
		OD	Rev (-), DtE (⊕)	DtE (+)	Rev (-), DtE (⊕)			Rev (-)			Rev (-)		Rev (⊖)			Rev (-), DtE (⊕)	DtE (+)		
	NS		1.5221 *		0.6411 *												2.0537**		
		OD	Rev (-), DtE (⊕)	DtE (+)	Rev (-), DtE (⊕)			Rev (-)			Rev (-)		Rev (⊖)			Rev (-), DtE (⊕)	DtE (+)		
IT	ES																		6.4209 *
		OD	Rev (-)		Rev (-)														Rev (-), PM (-)
	PS																		
		OD	Rev (-)		Rev (-)			DtE (⊕)											Rev (-)
	NS										-7.8611**		-3.1572**						
		OD	Rev (-)		Rev (-)						PM (-)		PM (-)						Rev (-), PM (-)
TC	ES		0.4283**		1.7889**														
		OD	Rev (-), DtE (⊕)	Rev (-), DtE (+)	Rev (-), DtE (+)											Rev (-)	Rev (-), PM (+), DtE (+)		
	PS		0.3802**		1.5882**														
		OD	Rev, DtE	Rev (-), DtE (+)	Rev (-), DtE (+)											Rev (-)	Rev (-), PM (+), DtE (+)		
	NS																		
		OD														Rev (-)	Rev (-),		Rev (-)
UT	ES			1.9570 *													0.7719 *		
		OD		PM (+)												DtE (-)	DtE (+)		Rev (-), DtE (-)
	PS			2.1227 *								-5.6010*							
		OD		PM (+)								Rev (+), PM. (+), DtE (-)				DtE (-)	DtE (+)		Rev (-), DtE (-)
	NS		-13.0733**		-5.3997**											-5.9594***			
		OD	Rev (+)		Rev (+)											Rev (+)			Rev (-), DtE (-)

Summary of industry regression results covering the effects of ethical behaviour on the return.

Table 31 summarises all regression results for all nine industries including a sample size of 376 companies showing the impact of the ethical behaviour of a company on its financial return within a specific industry.

The regression for each industry, namely Consumer Discretionary (CD), Consumer Staples (CS), Energy (EN), Financials (FI), HealthCare (HC), Industrials (IN), Information Technology (IT), Telecommunication (TC), and Utilities (UT), is run three times for each score, namely Ethical Score (ES), Positive Score (PS), and Negative Score (NS).

This procedure has been conducted for the USA, Germany, China, and all three countries combined. The combined results are the data for each country in the specific industry merged.

For each country, each industry and each regression, the expectation (EX) has been stated: (+) indicating a positive impact of ethical behaviour (ES and PS) or unethical behaviour (NS) on the financial return. (-) indicating a negative impact on the return, and (o) indicating no significant impact of the behaviour on the return.

The dependent variable for the return is the return, which is measured in three ways: the average abnormal return (aAR), the buy-and-hold abnormal return (BHAR), and the cumulative abnormal return (CAR). The return covers the time period from 2010 to 2017. The independent variables are defined as follows: Ethical Score (ES) (as the difference between the Positive Score and the Negative Score), Positive Score (PS), Negative Score (NS), the log revenue [in bn $] 2010 (Rev), profit margin averaged over the time frame from 2010 to 2017 (PM), and Debt-to-Equity in 2010 (DtE).

The table describes the effect of the score on the return with the coefficient and the significance level (*** Significant at 1%, ** Significant at 5%, * Significant at 10%) as well as other drivers (OD) that have a significant impact on the return. The other drivers are only mentioned and the sign of the coefficient is stated: (-) stands for a negative impact of the independent variable on the return, (+) for a positive impact, (⊖) for a negative sign but a coefficient between -1 and 0, and (⊕) for a coefficient that is positive but between 0 and 1.

6.3 Conclusion

This chapter investigates whether the ethical behaviour of a company has an impact on the financial performance with regards to its industry by evaluating the ethical and financial performance of companies from the USA, Germany, and China from 2010 to 2017. This study is novel in that it uses a self-constructed ethical scoring system and incorporating the industry as an independent variable in the OLS-regression model. It uses Average Abnormal Return, Buy-and-Hold Return, and Cumulative Abnormal Return as the return metrics in order to eliminate a return measurement error.

Using a sample of 376 companies in total, comprising of 143 companies for the USA, 122 companies for Germany, and 111 companies for China, it is clear that the country as well as the industry the company is in has an impact whether and how the ethical behaviour of a company impacts the financial performance.
This might be due to the different cultural perceptions in each country as well as the different nature of each industry and its implications on consumer behaviour.
The empirical results of this study provide statistical evidence that the industry the company is in constitutes a statistically significant independent variable, hence making it a significant explanator for the impact ethical behaviour has on the financial performance of the company.

In short, the Consumer Staples and Energy industry show no impact of ethical behaviour on the return.
The Consumer Discretionary, Finance and Industrials Industry indicate that ethical behaviour is penalised while unethical behaviour is financially rewarded.
The HealthCare, Information Technology, Telecommunication, and Utility industry mainly show that ethical behaviour is financially rewarded while unethical behaviour is penalised.
However, these results are not valid in every of the three countries. They depend on the country and the return metric.

The results of this study might add to the reasoning behind contradicting results and could be beneficial for further studies analysis on other countries or other time frames.
The implication of the results can indicate the strategy ethical fund manager and investor should apply when choosing which industries to include in their investment portfolio.

As the demand and the awareness for ethical and conscious investments increases rapidly, further research is needed on whether the impact of the industries changes. With a higher transparency possible and more consumer choice, it might be interesting to investigate whether consumers when possible choose the more ethical options in the future.

To dive deeper into areas where ethical investment might have an impact on the financial performance, after the country and the industry, the zooming-in process continues and now the company size will be examined.

Chapter 7

Companies' ethical behaviour: does size matter?

7.0 Introduction

After examining the impact of the country and the industry of the ethical score on the financial return, the thesis is zooming further in and elaborates the impact of size on the relation between Ethical Behaviour and financial performance.

In literature, there are two conflicting theories: The Slack Resource Theory (SRC) that states that bigger companies have a better corporate social performance and the Small Company Bias Theory (SCB) that states that smaller companies have a better corporate social performance.

A possible explanation for the existence of the conflicting theories might be due to differing definitions of a company's size. Therefore, this thesis uses all common size measurements, namely revenue (Eskandari (2012), Badulesco et al. (2018)), market capitalization (Luther et al. (1992), Bauer et al. (2005), Dang et al. (2018)), number of employees (Hasan and Jandoc (2010), Ruzzier and Ruzzier (2012)) and total assets (Hasan and Jandoc (2010), Siregar and Bukit (2017), Dang et al. (2018)) and contributes thereby to the current state of research. According to Alessandri (2008), the Slack Resource Theory has been operationalised as the Debt-to-Equity Ratio and therefore will be included in the regression.
Further, the analysis is as previous undertaken in all three countries, USA, Germany, and China.
This thesis uses four cross-sectional OLS regression to further check for time lag and data robustness. The regressions are run with all three scores.

This chapter will first elaborate the research methodology, the sample and the measurement of size, then build the empirical regression model and further evaluate the regression results by country and combined.

7.1 Research Methodology

7.1.1 Sample

Country

To evaluate the performance of stocks in different countries with different ethical scores, it has to be selected where the data should come from.

Most studies just concentrate on one country (or fund or index) for analysis neglecting that different countries have different ethical views and put different importance on ethical issues. Therefore, this study examines the biggest countries by GDP from each continent. Due to a lack of information and data availability Africa is excluded. For Europe, Germany is chosen, for America, the Unites States of America are chosen, and for Asia-Pacific, China has been selected as these have the highest GDPs.

Another added value is that all these countries have different capital markets and different corporate governance systems. Germany has a 2-Tier system with the "Aufsichtsrat" and the "Vorstand", the USA has a 1-Tier system, while Chines companies are highly government influenced.

Furthermore, there is a lack in research especially in Germany and China which is aimed to be filled by this research.

Company

The aim of the company selection is to cover a representable amount of the equity market. The threshold is set to cover at least 85% of the equity universe as it covers the large and mid-cap segments of the market. Therefore, the iShares MSCI ETF of the respective country is chosen which covers 85% of the equity universe.

Furthermore, to get a large enough sample the Top 100 largest companies by market capitalisation are included as well. The Top 100 are overlapping with the iShares MSCI country index ETF.

Companies must have been active for the entire period of the study

Companies must have been active for the entire period of the study and have to had their IPO prior to the beginning of the sample period or are otherwise excluded.

The iShares MSCI USA ETF includes 157 companies that completely overlap with the Top 100 companies. Reduced by the companies that do not cover the whole sample period, a sample of 143 companies for the USA is created.

In Germany, the iShares MSCI German Index ETF includes 70 holdings. Additionally, the top 100 biggest companies are included, which results excluding overlap, into 142 companies. Reduced by the sample period covering, 122 companies in total in Germany are examined.

The iShares MSCI CHINA ETF includes 309 holdings. Companies that are not listed since the sample period are again excluded. This results into 105 companies for screening. In addition, the top 100 biggest companies are added, resulting, excluding overlap, into 163 companies. Reduced by the companies that do not cover the whole sample period, a sample of 111 companies is chosen.

All financial data has been obtained manually from publicly available sources, namely Annual Reports of each company, stock exchange data from NASDAQ, DAX, and SSE as well as online websites yahoo finance, macrotrends.net, go.guidants.com, sec.gov and gurufocus.com.

Time frame

Data collection starts in 2018. To achieve a long-term analysis, which normally covers a 10 year period, the start date of collection should be 2007. But due to the financial crisis '07/'08 and its effects, the start date is 01/01/2010. An important justification for choosing this time frame is, that this will erase errors which might have occurred due to the distortion from the crisis.
The start date is the 01/01/2010 and the end date is the 31/12/2017.

7.1.2. Measurement of Size

In order to measure the size of a firm, valid methods of measuring have to be found. Zadeh and Eskandari (2012) state sales, employees, assets or value add features to measure the size. Dang et al. (2018) surveyed 100 research papers and found that total assets, total sales, and market capitalisation are the most used measurements of the firm's size in empirical work. Ruzzier and Ruzzier (2012) also used number of employees and sales as the reflection of the firm's size. The University of Kansas named market capitalization, total assets and Sales Revenue as valid measurements of firm size. Siregar and Bukit (2017) analyse the impact of corporate social responsibility and company size on corporate financial performance with good corporate governance as moderating variable. They proxied the company size with the

logarithm value of total assets. According to Alessandri (2008), the Slack Resource Theory has been operationalised as the Debt-to-Equity Ratio and therefore will be included in the regression. Badulescu et al. (2018) applied revenue as a measurement for the firm's size. Hasan and Jandoc (2010) used employment and Total Assets[17] as the measurement. Luther et al. (1992) as well as Bauer et al. (2005) used market capitalization the method of measuring. Therefore, this study tries to combine all used measurement methods and applies Sales/Revenue, Market Capitalization, Number of Employees, Net Profit Margin, Debt-to-Equity, Total Assets as independent variables. Industry and Country are added as dummy variables.

7.1.3. Regression

7.1.3.1. Variable Measurement and Model Specification

Dependent Variable:

The dependent variable in this regression model is the Ethical Score. The Ethical Score is subdivided into the Positive Score, that only includes the score of positive screening, the Negative Score, that only includes the score of negative screening, and the Ethical Score, which is calculated as the difference between the Positive Score and the Negative Score.
In order to add to the research gap, an own scoring system has been built by analysing all funds in the EIRIS Ethical Funds Directory to find out which approaches have been used as well as which positive and negative screens are the most used. To depict a scoring system that represents the market, a 5% threshold is applied. This means that a factor has to be in at least 5% of all funds to be included in the ethical scoring system. This results in 26 negative factors and 25 positive factors. All factors are weighed equally. With these factors, every company will be screened to find out their positive score, negative score, and the difference of both, which is defined as the ethical score.
Each of the companies is screened using the ethical score system. This gives every company a positive screening score (PS), a negative screening score (NS) as well as the difference of both, resulting into the final ethical score (ES).
This procedure is done twice, once at the beginning of the sample period (2010) and at the end (2017).

[17] They used Capital which they defined as the Value of Total Assets minus the value of land and buildings as they focus on a specific area of firms. This study focusses on all industries and therefore does not minus the value of land and buildings.

Independent Variables:

For the independent variables, six variables have been chosen from which four are directly linked to measuring the size of the firm and therefore its impact on the Ethical Score. The control variables cover revenue, market capitalization, number of employees, net profit margin, debt-to-equity, total assets, industry, and country.

All data was collected from publicly available sources, namely Annual Reports of each company, stock exchange data from NASDAQ, DAX, and SSE as well as online websites yahoo finance, macrotrends.net, go.guidants.com, sec.gov, and gurufocus.com. All independent variables cover the sample period starting from 01/01/2010 to 31/12/2017.

Revenue: Revenue data is used as of 31/12 of each year and is further logarithmised and measured in the currency of the country.

Market Capitalization: Revenue data is used as of 31/12 of each year and is further logarithmised and measured in the currency of the country.

Number of Employees: The number of employees has been collected from the Annual Report of the corresponding company each year and from macrotrends.net and is further logarithmised.

Net Profit Margin: The Net Profit Margin is calculated as net income divided by revenue expressed as a decimal figure.

Debt-to-Equity: The Debt-to-Equity Ratio is calculated by dividing a company's total liabilities by its shareholder equity.

Total Assets: Total Assets data is used as of 31/12 of each year and is further logarithmised an measured in the currency of the country.

Dummy Variable

For the regression two dummy variables, namely industry and country, have been used to detect any influences.

For this, the industries are numbered by giving them a number for the inclusion in the regression, namely consumer discretionary "1", consumer staples "2", energy "3", financials "4", health care "5", industrials "6", information technology "7", telecommunication "8", and utility "9".

The countries are also numbered, namely USA "1", Germany "2", and China "3".

Regression analysis offers to find explanatory contribution on different factors that influence the Ethical Score, which is the aim of this thesis. The emphasis is put on the impact of the size of the firm on the Ethical Score. This is why this study is also using a regression analysis.

7.1.3.2. Empirical Model

This thesis uses four cross-sectional OLS regressions which are modelled as following:

The first regression uses the dependent variable from 2010 and the independent variables from 2010 (t=2010). The second regression uses the dependent variable from 2017 and the independent variables from 2017 (t=2017).

$$\text{Ethical Score}_t = \text{intercept} + \beta1*\text{logRevenue}_t + \beta2*\text{logMarketCapitalization}_t + \beta3*\text{logNumberOfEmployees}_t + \beta4*\text{NetProfitMargin}_t + \beta5*\text{Debt-to-Equity}_t + \beta6*\text{logTotalAssets}_t + \beta7*\text{industry}$$

The third regression accounts as a robustness check for a time lag and therefore uses the dependent variable from 2017 and the independent variables from 2016.

$$\text{Ethical Score}_{2017} = \text{intercept} + \beta1*\text{logRevenue}_{2016} + \beta2*\text{logMarketCapitalization}_{2016} + \beta3*\text{logNumberOfEmployees}_{2016} + \beta4*\text{NetProfitMargin}_{2016} + \beta5*\text{Debt-to-Equity}_{2016} + \beta6*\text{logTotalAssets}_{2016} + \beta7*\text{industry}$$

The fourth regression accounts as a further robustness check and uses the average of the data of 2010 and 2017 for both, the dependent as well as the independent variables.

$$\text{Ethical Score}_{Ø10,17} = \text{intercept} + \beta1*\text{logRevenue}_{Ø10,17} + \beta2*\text{logMarketCapitalization}_{Ø10,17} + \beta3*\text{logNumberOfEmployees}_{Ø10,17} + \beta4*\text{NetProfitMargin}_{Ø10,17} + \beta5*\text{Debt-to-Equity}_{Ø10,17} + \beta6*\text{logTotalAssets}_{Ø10,17} + \beta7*\text{industry}$$

All four regression are run with the Ethical Score as the dependent variable as well as the Positive Score and the Negative Score.

The regressions are run for each country, namely the USA, Germany, and China, separately and for all three combined. For the combined regression a second dummy variable, named *country* is added.

7.2 Empirical Results and Discussion

7.2.1 Descriptive Statistics

Table 32 - Descriptive Statistics USA

	Mean	Median	Standard Deviation	Min	Max	Skewness	Kurtosis	N° of observations
ES_{10}	9.0216	9.0000	4.5431	-3.0000	17.0000	-0.3190	-0.8853	139
ES_{17}	11.7842	13.0000	3.6458	0.0000	18.0000	-1.1350	0.8173	139
PS_{10}	10.6331	12.0000	4.5537	1.0000	18.0000	-0.4388	-1.0057	139
PS_{17}	13.5108	15.0000	3.3594	2.0000	19.0000	-1.6032	2.3892	139
NS_{10}	1.6115	1.0000	1.7853	0.0000	9.0000	1.6214	3.3512	139
NS_{17}	1.7266	1.0000	1.8302	0.0000	9.0000	1.5644	2.9202	139
$logRev_{10}$	1.3157	1.3230	0.5560	-0.9329	2.6075	-0.5688	1.2735	139
$logRev_{17}$	1.4682	1.4168	0.4448	0.3962	2.6824	0.0745	-0.1244	139
$logMarCap_{10}$	1.4557	1.4450	0.4448	-0.5258	2.4459	-0.4652	1.9922	139
$logMarCap_{17}$	1.8903	1.8538	0.3897	-0.1355	2.9326	-0.7968	5.5911	139
$log\#emp_{10}$	4.6196	4.6721	0.6139	2.9538	6.3222	-0.4213	0.1139	139
$log\#emp_{17}$	4.7461	4.7235	0.5338	3.3617	6.3617	-0.1420	0.0572	139
NPM_{10}	0.1168	0.1040	0.1567	-1.3222	0.6160	-5.2356	51.2137	139
NPM_{17}	0.1384	0.1066	0.1504	-0.2591	1.1309	2.4002	13.3799	139
DtE_{10}	2.9480	1.3419	3.7702	-2.3700	23.7184	2.3825	7.2206	139
DtE_{17}	4.8742	2.0144	23.5867	-77.3892	258.9296	8.8675	98.6228	139
$logTotAss_{10}$	1.6177	1.5446	0.7488	-0.4134	5.8728	1.3570	6.9077	139
$logTotAss_{17}$	1.8343	1.8181	0.5668	0.5497	3.4037	0.3927	0.2498	139

This table provides the descriptive statistics for independent and dependent regression variables for the USA. The dependent variables are the *Ethical Score,* which is the difference between the positive and the negative score, for 2010 (ES_{10}) and for 2017 (ES_{17}), the *Positive Score*, which is the sum of all positive scores in the screening, for 2010 (PS10) and for 2017 (PS17), as well as the *Negative Score*, which is the sum of all negative scores in the screening, for 2010 (NS10) and for 2017 (NS17).
The independent variables are: The *Revenue* (logRev), which is the logarithmised revenue data of the 31/12 of the year and is measured in billions in US$ in 2010 ($logRev_{10}$) and 2017 ($logRev_{17}$). The *Market Capitalisation* (logMarCap) that is logarithmised and measured in billions in US$ in 2010 ($logMarCap_{10}$) and 2017 ($logMarCap_{17}$). The *number of employees* (log#emp) in 2010 (log#emp10) and in 2017 (log#emp17) that is logarithmised. The *Net-Profit-Margin* (NPM) that is calculated as net income divided by revenue for the year 2010 (NPM10) and 2017 (NPM17). The *Debt-to-Equity* is calculated by dividing a company's total liabilities by its shareholder equity and measured in 2010 (DtE10) and 2017 (DtE17). The Total Asset which is the logarithmised Total Asset data from the balance sheet in 2010 (logTotAss10) and 2017 (logTotAss17) and is measured in billions in US$.

When looking at the USA, it is found that the mean Positive and Ethical Score increases over time by around three points, while the mean Negative Score increases only by around 0.1 points. Similar results can be found when looking at the median. This indicates that the ethical behaviour increases over time while the negative ethical behaviour almost remains the same. It can also be found that all return metrics increase over time.
It is also noteworthy, that the standard deviation decreases for ES and PS, while it slightly increases for NS.
When looking at the return metrics, it can also be found that the mean increases for every return metric, while the standard deviation decreases for revenue, market capitalization,

number of employees, net profit margin and total assets also, while increasing significantly for Debt-to-Equity.

The descriptive statistics hint that ethical behaviour increases and decreases in volatility, while negative ethical behaviour almost remains similar with an increase in volatility. The return metrics also show an increase indicating a possible correlation.

Table 33 - Descriptive Statistics Germany

	Mean	Median	Standard Deviation	Min	Max	Skewness	Kurtosis	N° of observations
ES_{10}	8.9008	9.0000	3.5289	1.0000	17.0000	-0.1568	-0.7795	121
ES_{17}	11.1818	12.0000	3.5583	1.0000	17.0000	-0.6628	-0.1276	121
PS_{10}	9.4298	10.0000	3.6744	1.0000	17.0000	-0.2125	-0.7558	121
PS_{17}	11.7934	13.0000	3.6903	1.0000	17.0000	-0.7751	-0.0637	121
NS_{10}	0.5289	0.0000	1.0529	0.0000	6.0000	2.7617	8.9130	121
NS_{17}	0.6116	0.0000	1.1309	0.0000	6.0000	2.3401	5.9560	121
$logRev_{10}$	0.2871	0.3179	1.1085	-2.7747	2.4729	-0.2647	-0.3934	121
$logRev_{17}$	0.4370	0.5222	1.0122	-3.3010	2.4340	-0.4775	0.6490	121
$logMarCap_{10}$	0.3288	0.4203	0.9968	-2.0655	3.0072	-0.1510	-0.3893	121
$logMarCap_{17}$	0.6493	0.6645	0.9341	-2.2899	3.2091	-0.4610	0.6759	121
$log\#emp_{10}$	0.7087	0.6884	1.1027	-2.4089	2.8876	-0.3571	-0.1753	121
$log\#emp_{17}$	0.8805	0.9467	1.0415	-2.4318	2.9827	-0.6239	0.6965	121
NPM_{10}	-0.0146	0.0573	0.8647	-9.4100	0.3130	-10.7415	117.0299	121
NPM_{17}	-0.2429	0.0626	3.7093	-40.8000	1.2853	-10.9372	120.0772	121
DtE_{10}	0.7521	0.4600	0.9232	-0.0400	5.3300	2.8524	9.5942	121
DtE_{17}	0.7762	0.4100	1.2164	-0.8700	9.3600	4.2249	24.1168	121
$logTotAss_{10}$	0.4705	0.4609	1.1593	-2.3098	3.4032	0.1837	-0.5361	121
$logTotAss_{17}$	0.7639	0.7230	1.0054	-1.9838	3.2219	-0.1110	-0.1475	121

This table provides the descriptive statistics for independent and dependent regression variables for Germany. The dependent variables are the *Ethical Score,* which is the difference between the positive and the negative score, for 2010 (ES_{10}) and for 2017 (ES_{17}), the *Positive Score*, which is the sum of all positive scores in the screening, for 2010 (PS10) and for 2017 (PS17), as well as the *Negative Score*, which is the sum of all negative scores in the screening, for 2010 (NS10) and for 2017 (NS17).

The independent variables are: The *Revenue* (logRev), which is the logarithmised revenue data of the 31/12 of the year and is measured in billions in US$ in 2010 ($logRev_{10}$) and 2017 ($logRev_{17}$). The *Market Capitalisation* (logMarCap) that is logarithmised and measured in billions in US$ in 2010 ($logMarCap_{10}$) and 2017 ($logMarCap_{17}$). The *number of employees* (log#emp) in 2010 (log#emp10) and in 2017 (log#emp17) that is logarithmised. The *Net-Profit-Margin* (NPM) that is calculated as net income divided by revenue for the year 2010 (NPM10) and 2017 (NPM17). The *Debt-to-Equity* is calculated by dividing a company's total liabilities by its shareholder equity and measured in 2010 (DtE10) and 2017 (DtE17). The Total Asset which is the logarithmised Total Asset data from the balance sheet in 2010 (logTotAss10) and 2017 (logTotAss17) and is measured in billions in US$.

Germany shows a similar picture to the USA. The mean Ethical Score as well as the mean Positive Score increase by around 2 points, which is slightly lower than the USA. The mean Negative Score increases slightly by around 0.1 point similar to the USA. In contrast to the USA, the standard deviation increases even if only slightly for ES, PS and NS.

When looking at the return metrics, it is noticeable that the mean as well as the median increases; only for Debt-to-Equity, the median decreases slightly. For revenue, market capitalization, number of employees as well as total assets, the standard deviation decreases over time while increases for net profit margin and Debt-to-Equity.
An increase ethical behaviour as well as an increase in return metrics might indicate a positive correlation.

Table 34 - Descriptive Statistics China

	Mean	Median	Standard Deviation	Min	Max	Skewness	Kurtosis	N° of observations
ES_{10}	6.3945	6.0000	3.7368	-1.0000	15.0000	0.1228	-0.6995	109
ES_{17}	9.7523	10.0000	4.2881	0.0000	17.0000	-0.6696	-0.2329	109
PS_{10}	7.1009	7.0000	3.8906	0.0000	15.0000	0.0451	-0.8351	109
PS_{17}	10.4679	11.0000	4.3231	0.0000	18.0000	-0.7606	-0.0791	109
NS_{10}	0.7064	1.0000	0.9702	0.0000	7.0000	3.1284	16.1617	109
NS_{17}	0.8349	1.0000	1.5296	0.0000	13.0000	5.3985	38.2514	109
$logRev_{10}$	1.0792	1.1934	0.9123	-2.5229	2.6750	-0.6138	1.0267	109
$logRev_{17}$	1.5201	1.5567	0.7957	-0.3969	2.9335	-0.2234	-0.6071	109
$logMarCap_{10}$	1.4975	1.5971	0.6892	0.0000	3.1655	-0.0632	-0.4960	109
$logMarCap_{17}$	1.7819	1.8354	0.6475	0.0677	3.5862	-0.0840	0.5294	109
$log\#emp_{10}$	68.7891	27.6400	107.6577	0.1050	552.6980	2.5238	6.2800	109
$log\#emp_{17}$	92.4279	42.9150	124.5155	0.0720	494.2970	1.9912	3.0592	109
NPM_{10}	0.2147	0.1371	0.2895	-0.1806	2.2307	3.9734	22.6798	109
NPM_{17}	0.1787	0.1296	0.2006	-0.4355	1.1134	1.6713	5.4333	109
DtE_{10}	0.7370	0.3700	1.5911	0.0000	15.7121	7.8755	72.5671	109
DtE_{17}	0.9084	0.5000	1.3793	0.0010	12.7664	6.1401	50.0148	109
$logTotAss_{10}$	98.1528	12.4550	277.6682	0.0012	1598.8460	4.3438	19.6619	109
$logTotAss_{17}$	993.4668	28.3510	8063.4827	0.0450	84576.0000	10.3599	107.8510	109

This table provides the descriptive statistics for independent and dependent regression variables for China. The dependent variables are the *Ethical Score,* which is the difference between the positive and the negative score, for 2010 (ES_{10}) and for 2017 (ES_{17}), the *Positive Score*, which is the sum of all positive scores in the screening, for 2010 (PS10) and for 2017 (PS17), as well as the *Negative Score*, which is the sum of all negative scores in the screening, for 2010 (NS10) and for 2017 (NS17).
The independent variables are: The *Revenue* (logRev), which is the logarithmised revenue data of the 31/12 of the year and is measured in billions in US$ in 2010 ($logRev_{10}$) and 2017 ($logRev_{17}$). The *Market Capitalisation* (logMarCap) that is logarithmised and measured in billions in US$ in 2010 ($logMarCap_{10}$) and 2017 ($logMarCap_{17}$). The *number of employees* (log#emp) in 2010 (log#emp10) and in 2017 (log#emp17) that is logarithmised. The *Net-Profit-Margin* (NPM) that is calculated as net income divided by revenue for the year 2010 (NPM10) and 2017 (NPM17). The *Debt-to-Equity* is calculated by dividing a company's total liabilities by its shareholder equity and measured in 2010 (DtE10) and 2017 (DtE17). The Total Asset which is the logarithmised Total Asset data from the balance sheet in 2010 (logTotAss10) and 2017 (logTotAss17) and is measured in billions in US$.

China shows the highest increase in mean Ethical and Positive Score, while only having a slight increase in mean Negative Score. This is also supported by the median. The standard deviation, however, also increases for ES and PS slightly and significantly for NS.

When looking at the return metrics, the means for revenue, market capitalization, number of employees, Debt-to-Equity and Total Assets increase significantly, while mean for Net Profit Margin decreases. The same can be found for the median. The standard deviation decreases for all return metrics, except number of employees and Debt-to-Equity.
As for the USA and Germany, an overall increase in ethical behaviour as well as return metrics can be found indicating a possible, positive correlation.

Table 35 - Descriptive Statistics Combined

	Mean	Median	Standard Deviation	Min	Max	Skewness	Kurtosis	N° of observations
ES_{10}	8.2060	8.0000	4.1667	-3.0000	17.0000	-0.1087	-0.8314	369
ES_{17}	10.9864	12.0000	3.9159	0.0000	18.0000	-0.8652	0.1892	369
PS_{10}	9.1951	9.0000	4.3361	0.0000	18.0000	-0.1348	-0.9453	369
PS_{17}	12.0408	13.0000	3.9777	0.0000	19.0000	-1.0208	0.4605	369
NS_{10}	0.9892	1.0000	1.4426	0.0000	9.0000	2.2975	6.8704	369
NS_{17}	1.0897	1.0000	1.6135	0.0000	13.0000	2.7730	11.6639	369
$logRev_{10}$	0.9086	1.1095	0.9813	-2.7747	2.6750	-0.8755	0.8219	369
$logRev_{17}$	1.1421	1.2977	0.9187	-3.3010	2.9335	-0.9153	1.6225	369
$logMarCap_{10}$	1.0985	1.2614	0.9111	-2.0655	3.1655	-0.9134	0.8993	369
$logMarCap_{17}$	1.4508	1.6931	0.8860	-2.2899	3.5862	-1.1026	1.7661	369
$log\#emp_{10}$	22.2924	4.4535	65.8273	-2.4089	552.6980	4.9958	27.8179	369
$log\#emp_{17}$	29.2646	4.6471	78.8149	-2.4318	494.2970	4.1747	18.2211	369
NPM_{10}	0.1026	0.0888	0.5362	-9.4100	2.2307	-15.0223	270.1505	369
NPM_{17}	0.0252	0.0937	2.1400	-40.8000	1.2853	-18.9404	361.8074	369
DtE_{10}	1.5748	0.7100	2.7425	-2.3700	23.7184	3.7799	18.2840	369
DtE_{17}	2.3563	0.9278	14.6636	-77.3892	258.9296	14.3527	258.1278	369
$logTotAss_{10}$	29.7573	1.5536	157.2791	-2.3098	1598.8460	8.2175	73.4950	369
$logTotAss_{17}$	295.1990	1.8493	4411.7758	-1.9838	84576.000	19.0250	363.8632	369

This table provides the descriptive statistics for independent and dependent regression variables for all three countries, USA, Germany, and China, combined. The dependent variables are the *Ethical Score,* which is the difference between the positive and the negative score, for 2010 (ES_{10}) and for 2017 (ES_{17}), the *Positive Score*, which is the sum of all positive scores in the screening, for 2010 (PS10) and for 2017 (PS17), as well as the *Negative Score*, which is the sum of all negative scores in the screening, for 2010 (NS10) and for 2017 (NS17). The independent variables are: The *Revenue* (logRev), which is the logarithmised revenue data of the 31/12 of the year and is measured in billions in US$ in 2010 ($logRev_{10}$) and 2017 ($logRev_{17}$). The *Market Capitalisation* (logMarCap) that is logarithmised and measured in billions in US$ in 2010 ($logMarCap_{10}$) and 2017 ($logMarCap_{17}$). The *number of employees* (log#emp) in 2010 (log#emp10) and in 2017 (log#emp17) that is logarithmised. The *Net-Profit-Margin* (NPM) that is calculated as net income divided by revenue for the year 2010 (NPM10) and 2017 (NPM17). The *Debt-to-Equity* is calculated by dividing a company's total liabilities by its shareholder equity and measured in 2010 (DtE10) and 2017 (DtE17). The Total Asset which is the logarithmised Total Asset data from the balance sheet in 2010 (logTotAss10) and 2017 (logTotAss17) and is measured in billions in US$.

For the combined analysis, it can also be found that the mean Ethical and Positive Score increases by around three points while the mean Negative Score increases only slightly. The same can be found for the median. The standard deviation decreases for ES and PS, while increases for NS. These results are similar to the individual country analysis.

The mean return metrics also increase over time, except the Net Profit Margin. However, the median Net Profit Margin increases over time. Interestingly, the standard deviation decreases for revenue and market capitalization but increases for every other return metric.
Concluding, the overall increase in ethical behaviour as well as return metric indicates a possible, positive correlation.

The descriptive statistical analysis indicated a general positive trend of ethical behaviour and company size. To further obtain information and a deeper understanding about the impact of size on ethical behaviour, now regressions will be analysed.

7.2.2 Regression Results

The regression results are divided into the three countries, USA, Germany, and China, and then analysed combined.
The analysis is further split into Ethical Score, Positive Score, and Negative Score.

7.2.2.1 USA

Ethical Score (ES)

When looking at the results for the USA using the Ethical Score (ES) as the dependent variable, it is visible that the only independent variable that is significant in all three regression models on a 1% level is the Market Capitalization. It has a positive coefficient indicating that a higher market capitalization has a positive impact on the ethical score. As the results of all four regressions are similar, a robustness of data and time lag can be assumed. The revenue has a negative coefficient for all four regression, however, they range close to zero and are not significant. The number of employees has a positive coefficient for regression 1 and 4 and a negative for 2 and 3. But all coefficients are close to zero and not significant as well indicating no relevant impact.
The Net Profit Margin is significant on a 10% level for the first regression, using the data from 2010 for the independent and dependent variables. It has a negative coefficient of -4.0228 indicating that a lower Net Profit Margin impacts the Ethical Score positively. Regression 2, that uses 2017 data, shows a similar coefficient but is statistically not significant. Regression 3, that evaluates the possible time lag, has a different coefficient for the Net Profit Margin, implicating a possible time lag effect. However, the results are

statistically not significant. Regression 4 also has a negative coefficient, signalling data robustness.

The Debt-to-Equity as well as the Total Assets have a negative, but close to zero coefficient for the first regression, and a positive, but also close to zero, coefficient for regression 2 to 4. However, all coefficients are statistically insignificant.

The F-Score is significant on a 1% level for Regression 1 and 4 and on a 5% level for 2 and 3. This indicates that the regression models provide a better fit to the data than the intercept model. This leads to the conclusion that the size of a firm does have an influence on the ethical score.

In summary, the Market Capitalization has a positive impact on the Ethical Score while the Net Profit Margin has a negative impact. All independent variables show data and time robustness with the only exception of Net Profit Margin.

The regression model appears to be a better fit than the intercept model only.

Table 36 - Regression Results USA ES

USA_ES	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	-0.7331	0.8362	9.8042**	0.0130	8.5738**	0.0269	3.0773	0.3666
logRevenue	-0.4457	0.7028	-1.1365	0.4346	-0.1227	0.9298	-1.0585	0.3898
logMarketCap	5.3780***	0.0000	2.9531***	0.0014	2.7052***	0.0044	4.5962***	0.0000
log#ofemployees	0.7531	0.4061	-0.4142	0.6641	-0.3425	0.7183	0.3342	0.6954
NetProfitMargin	-4.0228*	0.0985	-3.0393	0.1876	1.6738	0.4658	-2.9024	0.2566
Debt-to-Equity	-0.0142	0.8971	0.0159	0.2156	0.0047	0.3317	0.0190	0.4072
logTotalAssets	-0.4563	0.5403	0.7610	0.3020	0.3531	0.6128	0.1488	0.8156
Industry	0.0591	0.7281	-0.2133	0.1432	-0.1562	0.2839	-0.0894	0.5271
R-Squared	0.2398		0.1237		0.1212		0.2199	
F-Score	5.9035***		2.6215**		2.5607**		5.2341***	
Significance F	0.0000		0.0145		0.0167		0.0000	

Table XY – USA_ES Regression.

The table presents the regression results of the Ethical Score (ES) and the independent variables indicating the size of the firm in the USA. The dependent variable is the Ethical Score (ES), which is measured as the difference of the Positive Score (PS) and the Negative Score (NS). The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.

Regression 1 (Reg1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Positive Score (PS)

Using the Positive Score (PS) as the dependent variable in the regression, similar results to the Ethical Score regression results can be found. The Market Capitalization has positive coefficients for all four regression and is significant on a 1% and 5% level. This indicates that a high market capitalization has a positive impact on the Positive Score. Furthermore, the Net Profit Margin is statistically significant on a 5% level with a negative coefficient implying a negative impact. However, the coefficient is positive for the third regression, while all other regressions show a negative coefficient for the Net Profit Margin. This could be a signal for a possible time lag.

The revenue has all positive coefficients, indicating a positive impact of a high revenue on the Positive Score. The coefficients, however, are not statistically significant.

The number of employees, the Debt-to-Equity, as well as the Total Asset have all coefficients close to zero with mixed signs and no statistical significance.

The F-Score is statistically significant for all four regression on a 1% level. Just like the regression results for the Ethical Score, this implies that the regression models provide a better fit to the data than the intercept model.

All results show data robustness and time delay robustness except Net Profit Margin.

In summary, the results are very similar to the Ethical Score regression results. The Market Capitalization has a positive impact on the Ethical Score while the Net Profit Margin has a negative impact. All independent variables show data and time robustness with the only exception of Net Profit Margin. The regression model appears to be a better fit than the intercept model only.

Table 37 - Regression Results USA PS

USA_PS	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	-0.5335	0.8762	11.6854***	0.0013	10.6308***	0.0028	4.1542	0.1950
logRevenue	1.0045	0.3742	0.7844	0.5545	1.6485	0.1957	0.8640	0.4544
logMarketCap	4.4631***	0.0000	2.3583***	0.0050	2.0554**	0.0171	3.8204***	0.0000
log#ofemployees	0.9251	0.2914	-0.6284	0.4707	-0.5152	0.5520	0.2668	0.7391
NetProfitMargin	-4.6803**	0.0472	-3.0536	0.1473	1.1082	0.5963	-3.4084	0.1565
Debt-to-Equity	-0.0703	0.5069	0.0040	0.7334	0.0023	0.5952	-0.0029	0.8907
logTotalAssets	-0.3975	0.5809	0.2228	0.7403	-0.1639	0.7967	-0.1586	0.7912
Industry	0.0985	0.5490	-0.1720	0.1956	-0.1296	0.3295	-0.0488	0.7131

R-Squared	0.2935	0.1387	0.1381	0.2670
F-Score	7.7727***	2.9905***	2.9744***	6.7640***
Significance F	0.0000	0.0061	0.0063	0.0000

Table XY – USA_PS Regression.

The table presents the regression results of the Positive Score (PS) and the independent variables indicating the size of the firm in the USA. The dependent variable is the Positive Score (PS), which is the sum of all positive scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.

Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Negative Score (NS)

While the revenue has negative coefficients within the regression results for the Ethical Score, the coefficients using the Negative score are positive, supporting the results for the Ethical Score. As the revenue coefficients are significant on a 1% and 5% level, it can be concluded that the revenue has a negative impact on the Ethical Score and a positive on the Negative Score. However, the Market Capitalization is statistically significant on a 5% level and has a negative coefficient meaning a negative impact on the Negative Score. Therefore, a high Market capitalization impacts the Ethical and the Positive Score positively and the Negative Score negatively.

In contrast to the regression results for the Ethical and the Positive Score, the Net Profit Margin is not statistically significant. The coefficients are negative just like for the Ethical Score and the Positive Score.

The Debt-to-Equity shows significant coefficients for regression 2 and 4. The coefficients are close to zero and significant on a 10% level. This indicates that the Debt-to-Equity Ratio has no impact on the Negative Score.

The number of employees and the Total Assets are, just like for ES and PS, close to zero with mixing signs and statistically not significant.

The F-Score is statistically significant on a 1% and 5% level indicating a good regression model fit.

As the results for regression three and four are similar to the results from one and two, a robustness of the data and time delay can be assumed.

In summary, the Negative Score regression results support the previous results and append it further. The revenue has a negative impact on the ES and a positive on the NS.
While the Market Capitalization has a positive coefficient for ES and PS, it has a negative for NS implying that a higher Market Capitalization has a negative impact on the Negative Score.
The Debt-to-Equity appears to have no significant influence on the Negative Score.
The regression model appears to be a better fit than the intercept model only.

Table 38 - Regression Results USA NS

USA_NS	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	0.1996	0.8907	1.8812	0.3387	2.0570	0.2890	1.0769	0.5196
logRevenue	1.4502***	0.0029	1.9208***	0.0095	1.7712**	0.0127	1.9225***	0.0018
logMarketCap	-0.9149**	0.0394	-0.5948	0.1934	-0.6498	0.1698	-0.7758*	0.0893
log#ofemployees	0.1720	0.6432	-0.2143	0.6554	-0.1728	0.7183	-0.0673	0.8723
NetProfitMargin	-0.6575	0.5081	-0.0143	0.9902	-0.5656	0.6250	-0.5060	0.6860
Debt-to-Equity	-0.0562	0.2124	-0.0119*	0.0662	-0.0024	0.3348	-0.0219*	0.0525
logTotalAssets	0.0588	0.8472	-0.5382	0.1479	-0.5170	0.1434	-0.3074	0.3274
Industry	0.0394	0.5721	0.0413	0.5721	0.0266	0.7173	0.0406	0.5582
R-Squared	0.1730		0.1090		0.1025		0.1641	
F-Score	3.9147***		2.2723**		2.1218**		3.6470***	
Significance F	0.0007		0.0325		0.0456		0.0013	

Table XY – USA_NS Regression.

The table presents the regression results of the Negative Score (NS) and the independent variables indicating the size of the firm in the USA. The dependent variable is the Negative Score (NS), which is the sum of all negative scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.
Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.
*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Summary

When looking at the regression results for the USA, clear results are depicted.
The Market Capitalization is significant on a 1% level for all almost four regression for ES and PS. Only the third regression for PS is significant on a 5% level. All four regression show a positive coefficient for both, ES and PS. This indicates that the market capitalization has a positive impact on the Ethical Score and on the Positive Score of a company.

The Market Cap for the Negative Score has a negative coefficient for all four regression, matching the results before and indicating that a lower market capitalization impacts the ethical score of a company negatively and the negative score positively.
The Net Profit Margin is significant for ES and PS implying that a higher Net Profit Margin has a negative effect on the Ethical and Positive score. For NS, the coefficients are also negative but not significant. All independent variables show data and time robustness with the only exception of Net Profit Margin.
Furthermore, all regression results for all four regression models show a significant F-Score on a 1% or 5% level. This indicates that the regression model provides a better fit to the data than a model that contains no independent variables. Therefore, the independent variables referring to the size of the company create a model that fits the data of the Ethical Score better than the intercept model.
As the results for regression 3 and regression 4 are similar to results of the regressions 1 and 2, robustness of the data and time lag is given.

Many studies that used market capitalization as a measurement of the firm's size, concluded that a lower market capitalization was associated with a better ethical or socially responsible performance (Luther et al., 1992, Luther and Matatko (1994), Schroeder, 2004, Bauer et al., 2005). However, this thesis finds that a higher market capitalization is associated with a better ethical performance and that a lower market capitalization is associated with unethical behaviour. This thesis, therefore, adds to the support of the Slack Resource Theory instead of the Small Company Bias.

7.2.2.2. Germany

Ethical Score (ES)

For Germany, there are four main independent variables that impact the dependent variable, namely the Ethical Score (ES) as seen in table XY. Firstly, the revenue is significant on a 1% level for the first regression with a positive coefficient and also significant on a 5% level for the fourth regression, indicating data robustness. An increasing revenue appears to impact the Ethical Score positively with data and time lag robustness.
The Market Capitalization, which is one of the main independent variables that impact the Ethical Score in the USA, has a less significant role. It has a positive coefficient for all four regression, indicating a positive impact on the Ethical Score similar to the USA, but is only significant for the second regression on a 10% level.

Thirdly, the number of employees is significant for regression two and three. The coefficient is negative but almost zero for the first regression using the 2010 data. The coefficients for the other regressions are all positive. The second regression, that uses the 2017 data, finds a positive coefficient of 1.2859 with a 1% significance. The third regression, that acts as a time lag robustness check, has a similar coefficient and is significant on a 5% level. Therefore, the number of employees appears to gain importance as an impact on the Ethical Score over time. A high number of employees might have a positive impact on the ES.

The fourth independent variable that has an impact on the ES is the Net Profit Margin (NPM). Similar to the USA, the coefficients of the NPM are negative for all four regressions. The coefficients are significant on a 1% level for the third and fourth regression, on a 5% level for the second and on a 10% level for the first regression. As a result, it can be assumed that the Net Profit Margin has a negative impact on the Ethical Score with data and time lag robustness.

Debt-to-Equity and Total Assets have negative coefficients for all four regression but are not statistically significant.

In Regression, it is visible that the industry the companies are in is statistically significant as well. Further research might look into the impact of the industry on the size effect on Ethical Scores. The F-Score is statistically significant on a 1% level for all regressions indicating a good regression model fit. As the results for regression three and four are similar to the results from one and two, a robustness of the data and time delay can be assumed.

Table 39 - Regression Results Germany ES

GER_ES	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	9.4378***	0.0000	9.7093***	0.0000	10.2610***	0.0000	9.6269***	0.0000
logRevenue	1.6474***	0.0088	0.2636	0.7249	0.8054	0.2827	1.3072**	0.0529
logMarketCap	0.8065	0.1535	0.9525*	0.0813	0.6804	0.2324	0.8617	0.1142
log#ofemployees	-0.0065	0.9876	1.2859***	0.0092	1.0089**	0.0395	0.5444	0.2178
NetProfitMargin	-0.5845*	0.0933	-0.2340**	0.0139	-0.2433***	0.0046	-0.3516***	0.0085
Debt-to-Equity	-0.4663	0.1514	-0.0528	0.8325	-0.0271	0.8631	-0.2763	0.4002
logTotalAssets	-0.6172	0.1829	-0.5652	0.2628	-0.7072	0.1007	-0.8086	0.1132
Industry	-0.1349	0.2760	0.0048*	0.09699	-0.0302	0.8114	-0.0524	0.6477
R-Squared	0.3055		0.2589		0.2662		0.2994	
F-Score	7.0995***		5.6386***		5.8563***		6.9000***	
Significance F	0.0000		0.0000		0.0000		0.0000	

Table XY – GER_ES Regression.

The table presents the regression results of the Ethical Score (ES) and the independent variables indicating the size of the firm in Germany.

The dependent variable is the Ethical Score (ES), which is measured as the difference of the Positive Score (PS) and the Negative Score (NS). The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.
Regression 1 (Reg1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.
*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Positive Score (PS)

When using the Positive Score as the dependent variable, a very similar picture to the Ethical Score is depicted. The revenue also has positive coefficients for all four regressions and is significant on a 1% level for regression one and four, and significant on a 10% level for regression 2. This indicates that a high revenue has a positive impact on the Positive Score with data and time lag robustness.
The market capitalization also shows a very similar regression result in comparison to the Ethical Score regression. All coefficients are under one and positive and only the second regression, that uses the 2017 data, is significant on a 10% level. This implies that the market capitalization has a positive impact on the Positive Score but is less significant than the revenue. The number of employees again has a negative but close to zero coefficient for the first regression that uses the 2010 data and for the other three regressions has positive coefficients. It is significant on a 1% level when using the 2017 data and the robustness check for time lag is significant on a 5% level. The number of employees appears to have a positive impact on the Positive Score in more recent years and appears to not have that effect earlier.
The Net Profit Margin has all negative coefficients that are close to zero. They are significant on a 1% level for regression two to four and significant on a 10% level for regression one. The Net Profit Margin appears to have no to slightly negative impact on the Positive Score. The same can be found for the Ethical Score. As the results for regression three and four are similar to one and two, data and time lag robustness can be assumed.
The Debt-to-Equity Ratio regression results for PS are also similar to the ES. The coefficients are all close to zero and a have a negative sign. The only difference is that the coefficient for the first regression is significant on a 10% level implying that a high Debt-to-Equity Ratio has a small, negative impact on the PS. The Total Assets coefficients are also all close to zero with a negative sign. None of them are statistically significant while the data is robust.

The F-Score is positive and statistically significant on a 1% level indicating a good regression model fit. As the results for regression three and four are similar to the results from one and two, a robustness of the data and time delay can be assumed.

Table 40 - Regression Results Germany PS

GER_PS	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	9.5406***	0.0000	9.7675***	0.0000	10.3410***	0.0000	9.7019***	0.0000
logRevenue	2.0396***	0.0008	0.6158	0.3857	1.2190*	0.0872	1.6782***	0.0092
logMarketCap	0.6736	0.2134	0.8561*	0.0976	0.5188	0.3357	0.7391	0.1525
log#ofemployees	-0.0270	0.9461	1.3641***	0.0036	1.1267**	0.0155	0.5546	0.1856
NetProfitMargin	-0.6364*	0.0568	-0.2511***	0.0055	-0.2598***	0.0015	-0.3739***	0.0033
Debt-to-Equity	-0.5191*	0.0964	-0.0644	0.7853	0.0019	0.9900	-0.3038	0.3295
logTotalAssets	-0.4136	0.3510	-0.2754	0.5634	-0.4876	0.2305	-0.5279	0.2740
Industry	-0.0684	0.5643	0.0421	0.7252	0.0076	0.9492	0.0021	0.9847
R-Squared	0.4107		0.3830		0.3884		0.4247	
F-Score	11.2500***		10.0217***		10.2507***		11.9179***	
Significance F	0.0000		0.0000		0.0000		0.0000	

Table XY – GER_PS Regression.

The table presents the regression results of the Positive Score (PS) and the independent variables indicating the size of the firm in Germany. The dependent variable is the Positive Score (PS), which is the sum of all positive scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.

Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Negative Score (NS)

When using the Negative Score as the dependent variable, only two independent variables have a statistically significant impact, namely the Revenue and the Total Assets. The revenue has all positive coefficients but close to zero. As the coefficients are all similar, time lag and data robustness are assumed. The coefficient for the first regression is statistically significant on a 5% level, while the coefficients for the third and fourth regression are statistically significant on a 10% level. The results imply that the revenue has small, positive impact on the Negative Score. This is counterintuitive as the revenue also has a positive impact on the

Ethical Score and the Positive Score. The coefficients for the ES and PS are bigger than the coefficient for the Negative Score.

The other independent variable that is statistically significant is the Total Assets. It is statistically significant on a 10% level with a positive coefficient that is close to zero. This implies that Total Assets have a small, positive impact on the Negative Score.

Market Capitalization and Net Profit Margin have all negative coefficients which are close to zero and not statistically significant.

The number of employees has a negative sign for the first regression and positive signs for the regressions two to four. All coefficients are close to zero. The Debt-to-Equity regression coefficients are all negative, except the coefficient for the third regression. Again, the coefficients are all close to zero. The number of employees as well as the Debt-to-Equity variables are statistically insignificant.

All four regression have a F-Score that is statistically significant on a 1% level indicating a good regression model fit. As the results for regression three and four are similar to the results from one and two, a robustness of the data and time delay is assumed.

Table 41 - Regression Results Germany NS

GER_NS	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	0.1028	0.6793	0.0582	0.8220	0.0801	0.7636	0.0749	0.7634
logRevenue	0.3921**	0.0469	0.3522	0.1361	0.4136*	0.0813	0.3710*	0.0967
logMarketCap	-0.1328	0.4554	-0.0964	0.5718	-0.1616	0.3674	-0.1226	0.4959
log#ofemployees	-0.0205	0.8760	0.0782	0.6086	0.1177	0.4422	0.0101	0.9446
NetProfitMargin	-0.0529	0.6283	-0.0170	0.5631	-0.0165	0.5354	-0.0222	0.6104
Debt-to-Equity	-0.0527	0.6060	-0.0115	0.8830	0.0289	0.5591	-0.0275	0.8003
logTotalAssets	0.2035	0.1644	0.2898*	0.0687	0.2195	0.1058	0.2807*	0.0975
Industry	0.0666	0.0899	0.0374	0.3485	0.0378	0.3438	0.0545	0.1534
R-Squared	0.2217		0.2768		0.2785		0.2621	
F-Score	4.5982***		6.1776***		6.2313***		5.7336***	
Significance F	0.0001		0.0000		0.0000		0.0000	

Table XY – GER_NS Regression.

The table presents the regression results of the Negative Score (NS) and the independent variables indicating the size of the firm in Germany. The dependent variable is the Negative Score (NS), which is the sum of all negative scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.

Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and

2017 in order to check the robustness.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Summary

For Germany, two main independent variables appear to have a positive impact on the ethical behaviour of a company. The Revenue has a positive impact on the Ethical Score as well as the Positive Score. Due to the fact that the revenue acts as an indicator of a company's size, bigger firms have better ethical performance. This supports the research results by Amine et al. (2020), Ekatah et al. (2011), Sipilä et al. (2020) and Rönnegard (2013).

Supporting the theory of a positive impact of a bigger company on the Ethical Score is the Market Capitalization that also has a positive impact on the Ethical Score and the Positive Score. This can be seen as a support of the Slack Resource Theory (Ullmann, 1985, McGuire et al., 1988, Waddock and Graves, 1997).

The number of employees appears to gain importance as an impact on the Ethical and Positive Score with time. In more recent years an increasing number of employees effects the Ethical and Positive score positive while it appears to have no effect earlier.

The Net Profit Margin has a negative but close to zero coefficient for the Ethical as well as the Positive Score implying that the profitability of a firm does not necessarily impact the ethical behaviour of firm positively but *appears to have no impact*. When using the Ethical Score as the dependent variable, the industry the company is in has a statistically significant influence on the impact of the Ethical Score. When using the Positive Score, the results cannot be confirmed. However, when using the Positive Score as the dependent variable the Debt-to-Equity Ratio appears to have a small but negative impact on the PS. Indebtedness appears to effect ethical behaviour negatively.

The Total Assets of a company are both for ES and PS statistically not significant. As the results for all four regression are similar, robustness of data and time delay is assumed.

Contradicting to the results for the revenue when using the Ethical and Positive Score, are the results when using the Negative Score as the dependent variable. The results reveal a small, but positive impact of the revenue on the Negative Score. This is counterintuitive as the revenue also has a positive impact on the Ethical Score and the Positive Score. However, the coefficients for the ES and PS are bigger than the coefficient for the Negative Score.

The Total Assets that appear to have no impact on the Ethical and Positive Score seems to have a small, positive impact on the Negative Score. As the Total Assets are also an indicator for a firm's size, the results are conflicting which can be an explanation for the existence of two contradicting theories.
For the Negative Score, the Market Capitalization, the number of employees, the Debt-to-Equity as well as the Net Profit Margin are all statistically not significant.

All regressions have a F-Score that is statistically significant on a 1% level indicating a good regression model fit. As the results for regression three and four are similar to the results from one and two, a robustness of the data and time delay is assumed.

With regards to the literature, as revenue and market capitalization have positive impact on the ethical behaviour of a company, the results of these regressions support the slack resource theory (Ullmann, 1985, McGuire et al., 1988, Waddock and Graves, 1997).
The fact that the revenue appears to also have a small, positive impact on the Negative Score might highlight the existence of two contradicting theories. The revenue might have a positive effect on the ethical as well as the unethical behaviour.
Furthermore, the Total Asset has no impact on the Ethical behaviour but a small, positive effect on the unethical behaviour supporting also the second theory, the Small Company Bias (Luther et al., 1992).
However, Luther et al. (1992), Schroeder (2004) and Bauer et al. (2005) found the small Company Bias (SCB) for companies with low market capitalization, as their indicator of size. This study opposes the results as the results for Market Capitalization only show a positive impact on the Ethical behaviour.

7.2.2.3. China

Ethical Score (ES)

When using the Ethical Score for China, three main independent variables appear to have a statistically significant impact: the revenue, the Net Profit Margin, and the Total Assets.
The coefficients for revenue are positive for all four regressions, indicating a positive impact of the revenue on the Ethical Score. The coefficients for the first regression, that uses the 2010 data, and the fourth regression, that uses the average of 2010 and 2017, are statistically on a 5% and 10% level, reinforcing the hypothesis that the revenue as a representative of the company's size has a positive impact on the Ethical Score. The regressions show data and time lag robustness.
Furthermore, the Net Profit Margin has positive coefficients for all regressions, except the third. The positive coefficients, which are statistically significant on a 5% level for the first regression, and on a 10% level for the fourth regression, support the hypothesis of a positive impact on the Ethical Score. The only negative coefficient is found for the third regression indicating a possible time lag for the effect of the Net Profit Margin.
The third independent variable that shows significant coefficients is the Total Assets. Except the first regression, that has a negative but close to zero coefficient, all other coefficients are positive but close to zero. The coefficients for the second and fourth regression are positive and statistically significant on a 10% level. This strengthens the results of a positive impact on the Ethical Score. Additionally, the regression shows data and time lag robustness.
The number of employees and the Debt-to-Equity Ratio show all positive coefficients with data and time lag robustness. This further strengthens the hypothesis of a positive impact of the company size on the Ethical Score.
The only independent variable that contradicts the previous results is the Market Capitalization. The coefficients for all regression are negative indicating a negative impact on the Ethical Score of companies with higher market capitalization. However, none of the coefficients are statistically significant. Data and time lag robustness is given.
In addition, all regressions show relatively low R-Squared values but show significant F-Scores on a 1% and 5% level for the first and fourth regression.

In summary, all independent variables indicate a positive impact of the company size on the Ethical Score, with revenue, Net Profit Margin, and Total Assets having statistically significant coefficients. The only independent variable that contradicts the previous results is the market cap, that shows a negative impact on the Ethical Score.

Table 42 - Regression Results China ES

CHI_ES	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	4.0216***	0.0004	6.9656***	0.0000	8.3069***	0.0000	5.6642***	0.0000
logRevenue	1,5281**	0.0330	0.9597	0.2571	1.2950	0.1427	1.4889*	0.0577
logMarketCap	-0.7864	0.4220	-0.0114	0.9902	-0.7757	0.4852	-0.8827	0.3769
log#ofemployees	0.0062	0.1223	0.0011	0.7730	0.0012	0.7854	0.0021	0.5528
NetProfitMargin	3.3162**	0.0119	2.0126	0.3529	-0.3692	0.7404	3.1567*	0.0537
Debt-to-Equity	0.2283	0.3027	0.0419	0.8923	0.1297	0.6527	0.1208	0.6175
logTotalAssets	-0.0032**	0.0356	0.0001*	0.0876	0.0001	0.9238	0.0002*	0.0634
Industry	0.1978	0.1601	0.1670	0.3295	0.1529	0.3803	0.2068	0.1448
R-Squared	0.1834		0.0818		0.0530		0.1461	
F-Score	3.2413***		1.2853		0.9075		2.4692**	
Significance F	0.0038		0.2652		0.5830		0.0222	

The table presents the regression results of the Ethical Score (ES) and the independent variables indicating the size of the firm in China. The dependent variable is the Ethical Score (ES), which is the sum of all negative scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.

Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Positive Score (PS)

When using the Positive Score, the same three independent variables, namely revenue, net Profit Margin, and Total Assets have a statistically significant influence with an addition of the number of employees.

The revenue shows all positive coefficients for all four regressions. The coefficients for the first, third, and fourth regression are statistically significant on a 5% and 10% level. This implies a positive impact of the revenue on the Positive Score.

The number of employees also shows only positive coefficients. The coefficient for the first regression is statistically significant on a 10% level. This supports the above results implying a positive impact on the Positive Score.

The Net Profit Margin shows a similar result to the regression results when using the Ethical Score as the dependent variable. The coefficients for the first, second, and fourth regression show positive coefficients from who's the first coefficient is statistically significant on a 5% level. As seen before, the third regression shows a negative coefficient but is statistically

insignificant. This might be due to a missing time lag robustness as the data shows robustness but not time lag robustness. Except that, the Net Profit Margin has also a positive impact on the Positive Score.

The Total Assets show a negative coefficient for the first regression that is also statistically significant on a 5% level but all positive coefficients for the other regression. The coefficients of regression two and four show statistical significance on a 10% level. The 2010 regression therefore implies a negative impact on the Positive Score, while the 2017 regression shows a positive impact. Time lag and data robustness is given.

As in the previous regressions for the Ethical Score, the Debt-to-Equity variable for the Positive Score has all positive coefficients of which none are statistically significant. The impact of the Debt-to-Equity on the Positive Score is positive.

The only independent variable that has all negative coefficients and therefore objects the previous results, is again the Market Capitalization. This implies a negative impact of the market capitalization on the Positive Score. However, none of the coefficients are statistically significant.

It also has to be mentioned, that the R-Squares values are relatively low and the F-Score is also significant for the first and fourth regression on a 1% and 5% level.

In summary, the results for the Positive Score are very similar to the results for the Ethical Score. All independent variables indicate a positive impact of the company size on the Ethical Score, with revenue, Net Profit Margin, number of employees, and Total Assets having statistically significant coefficients. The only independent variable that contradicts the previous results is the market cap, that shows a negative impact on the Positive Score.

Table 43 - Regression Results China PS

CHI_PS	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	4.9634***	0.0000	8.3801***	0.0000	9.6698***	0.0000	6.9470***	0.0000
logRevenue	1.7690**	0.0177	1.1413	0.1821	1.6685*	0.0594	1.8240**	0.0237
logMarketCap	-1.0591	0.2978	-0.4854	0.6025	-1.4833	0.1826	-1.4494	0.1577
log#ofemployees	0.0077*	0.0655	0.0022	0.5680	0.0026	0.5388	0.0034	0.3441
NetProfitMargin	2.9702**	0.0293	1.2189	0.5765	-0.8776	0.4306	2.7046	0.1055
Debt-to-Equity	0.2656	0.2481	0.0692	0.8248	0.1550	0.5901	0.1536	0.5352
logTotalAssets	-0.0033**	0.0358	0.0001*	0.0821	0.0001	0.8772	0.0002*	0.0595
Industry	0.1694	0.2456	0.1418	0.4116	0.1331	0.4439	0.1796	0.2156
R-Squared	0.1892		0.0807		0.0713		0.1523	
F-Score	3.3669***		1.2658		1.1082		2.5914**	
Significance F	0.0029		0.2749		0.3638		0.0168	

The table presents the regression results of the Positive Score (PS) and the independent variables indicating the size of the firm in China. The dependent variable is the Positive Score (PS), which is the sum of all negative scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.
Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.
*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Negative Score (NS)

When the Negative Score is applied as the dependent variable, no independent variable has a statistically significant influence. Counterintuitively, the coefficients for revenue are all positive, same as for ES and PS, while the coefficients for market cap are all negative, again the same as for ES and PS. This implies that the revenue has a positive and the market cap has a negative impact on the Negative Score, as well as the Ethical Score and the Positive Score. The number of employees and the Debt-to-Equity have all positive coefficients, implying a positive impact on the Negative Score.
The Net Profit Margin has all negative score indicating a negative impact on the Negative Score. The Total Assets have negative coefficients for the first and third regression and positive coefficients for the second and fourth. However, the coefficients are all close to zero. The R-Square is also relatively low. However, the F-Score is never significant in contrast to the ES- and PS-regressions.
In summary, none of the independent variables show statistically significant coefficients. The coefficient signs are, counterintuitively, similar to the results for the ES and PS regression. Revenue, number of employees, and Debt-to-Equity show positive signs, market cap and Net-Profit-Margin show negative coefficients and Total Assets show mixed signs.

Table 44 - Regression Results China NS

CHI_NS	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	0.9417***	0.0025	1.2620**	0.0169	1.667**	0.0233	1.1854***	0.0029
logRevenue	0.2408	0.2193	0.3287	0.2901	0.3907	0.2192	0.3554	0.1644
logMarketCap	-0.2725	0.3131	-0.3860	0.2562	-0.4107	0.3060	-0.4306	0.1888
log#ofemployees	0.0015	0.1784	0.0000	0.9979	0.0004	0.7760	0.0006	0.5934
NetProfitMargin	-0.3460	0.3346	-0.3225	0.6846	-0.3857	0.3378	-0.3556	0.5031
Debt-to-Equity	0.0373	0.5406	0.0355	0.7682	0.0402	0.6986	0.0230	0.7708
logTotalAssets	-0.001	0.7812	0.0000	0.9977	-0.0001	0.7520	0.0000	0.9055

Industry	-0.0284	0.4624	0.0626	0.4712	-0.0449	0.4744	-0.0368	0.4260
R-Squared	0.0801		0.0276		0.0327		0.0537	
F-Score	1.2570		0.4095		0.4873		0.8192	
Significance F	0.2793		0.8945		0.8419		0.5735	

The table presents the regression results of the Negative Score (NS) and the independent variables indicating the size of the firm in China. The dependent variable is the Negative Score (NS), which is the sum of all negative scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.

Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Summary

For China, the main independent variable with consistent results appears to be the revenue. The Revenue has a statistically significant, positive impact on the Ethical Score as well as the Positive Score. As a representative of the company's size, bigger firms have better ethical performance. This supports the research results by Amine et al. (2020), Ekatah et al. (2011), Sipilä et al. (2020) and Rönnegard (2013).

The Net Profit Margin also appears to have a positive, statistically significant impact on the Ethical and Positive Score of the company. A negative coefficient in the third regression for ES and, however, might indicate a possible time lag for the effect of the Net Profit Margin. When using NS, the Net Profit Margin appears to have a negative impact on the Negative Score, supporting the results from the previous regressions.

Total Assets shows a negative impact for the 2010 regression and then a positive for the 2017 regression as well as data and time lag robustness. The positive coefficients for the 2017 regression are statistically significant supporting the hypothesis of a positive impact on the ES and PS.

The number of employees as well as the Debt-to-Equity show all positive coefficients with data and time lag robustness implying a positive impact on the ES and PS. Using PS, the coefficients for number of employees are also statistically significant strengthening the theory of a positive impact. However, the regression results show also positive coefficients when using the NS. Those coefficients are not statistically significant.

The only independent variable that contradicts previous results is the Market Capitalization. The coeffects are all negative implying a negative impact on the Ethical Behaviour. However,

all coefficients are not statistically significant and are found to be negative also for the Negative Score.
As all of the above mentioned independent variables are indicator for the company's size and show slightly mixed the results, might be one of the reasons for the existence of two contradicting theories. The measurement of the company's size appears to play an integral part in the results.
The industry variable is statistically insignificant for all regression using all three dependent variables and therefore appears to have no influence in China.
The regressions for ES and PS have statistically significant F-Scores on a 1% and 5% level indicating a moderately good regression model fit. As the results for regression three and four are similar to the results from one and two, a robustness of the data and time delay is assumed.

7.2.2.4. Combined

For a combined analysis of all three countries, the data of the USA, Germany, and China have been combined to one regression. The regressions are as previously also undertaken with the dependent variable as the Ethical Score, the Positive Score, as well as the Negative Score. The industry a company is in as well as the country were included as dummy variables in order to detect statistical significance.

<u>Ethical Score (ES)</u>

When using the Ethical Score as the dependent variable, Revenue, Net Profit Margin, and Total Assets, as well as Country show statistically significant results.
The Revenue has positive coefficients for all four regression. The coefficient of the first regression is significant on a 1% level indicating that a higher revenue has a positive impact on the Ethical Score. The third and fourth regression coefficients are significant on a 5% level supporting the previous result. Time lag and data robustness can be assumed. Therefore, the revenue appears to have a positive impact on the Ethical Score.
The Market Cap also has all positive coefficients implying a positive impact on the Ethical Score. However, none of the coefficients show statistical significance.
The number of employees has all negative coefficient indicating a negative impact on the Ethical Score. As for Market Capitalization, none of the coefficients are statistically significant.

The Net Profit Margin also shows only negative coefficients. Except for the first regression, all coefficients are statistically significant on a 5% or 10% level. The Net Profit Margin appears to have a negative impact on the Ethical Score.
For the regression for 2010, the Debt-to-Equity shows a negative coefficient while for all other regressions a positive coefficient is found. Therefore, the impact on the Ethical Score might have changed over time from a negative impact to a positive. However, all coefficients are not statistically significant.
When looking at the Total Assets, the first regression shows a statistically significant, negative coefficient implying that the Total Assets have a negative impact on the Ethical Score with a 5% statistical significance. However, the second regression has a positive sign and is also statistically significant. The 2017 regression implies a positive impact of the Total Assets on the Ethical Score with a 10% statistical significance. This contradict the results of the first regression. The third regression, that test for time lag robustness, has a negative sign like the first regression and a coefficient that is similar to the one in the second regression. Therefore, there might be a time lag effect that accounts for the contradicting results in regression one and two. Data robustness can be assumed. The Total Assets, therefore, tend to have a positive impact on the Ethical Score but with a time delay.
The industry, as a dummy variable, appears not to have a significant impact.
However, the country shows statistical significance on a 1% level for all four regression. This is an import results as it might solve the gap in the literature. The country where the analysis in undertaken plays a significant role for the results.

All regressions show low R-Squared values but have statistically significant F-Scores on a 1% level for all regressions.

Table 45 - Regression Results Combined ES

COM_ES	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient.	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	9.4205***	0.0000	11.7778***	0.0000	11.8563***	0.0000	10.5333***	0.0000
logRevenue	1.0196***	0.0102	0.6260	0.1044	0.8319**	0.0354	0.8457**	0.0250
logMarketCap	0.2291	0.5897	0.2862	0.4554	0.0902	0.8298	0.1682	0.6667
log#ofemployees	-0.0005	0.8982	-0.0017	0.5740	-0.0014	0.6692	-0.0026	0.3930
NetProfitMargin	-0.3855	0.3304	-0.2117**	0.0267	-0.1979**	0.0254	-0.2625*	0.0667
Debt-to-Equity	-0.0851	0.2949	0.0140	0.3029	0.0043	0.4019	0.0154	0.5073
logTotalAssets	-0.0031**	0.0459	0.0001*	0.0799	-0.0002	0.7680	0.0001	0.1103
Industry	-0.0309	0.7281	-0.0406	0.6349	-0.0399	0.6422	-0.0307	0.6993

Country	-1.0263***	0.0006	-0.9013***	0.0012	-0.8682***	0.0018	0.9595***	0.0002
R-Squared	0.1319		0.0974		0.0907		0.1251	
F-Score	6.8391***		4.8427***		4.4744***		6.4347***	
Significance F	0.0000		0.0000		0.0000		0.0000	

The table presents the regression results of the Ethical Score (ES) and the independent variables indicating the size of the firm for Germany, USA, and China combined.

The dependent variable is the Ethical Score (ES), which is the sum of all negative scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.

Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Positive Score (PS)

When using the Positive Score as the dependent variable, similar results can be found. The Revenue has a positive coefficient for all four regressions and is statistically significant for all on a 1% level. This implies a positive impact of the revenue on the Positive Score. Time delay and data robustness can be assumed.

The Market Capitalization has positive coefficients for the first and second regression indicating a positive impact of the Market Capitalization on the Positive Score. However, the third and fourth regression show negative coefficients. This might be an indicator for missing time lag and data robustness.

The number of employees appears to have a negative impact on the Positive Score as all four coefficients show negative signs. However, none of these are statistically significant.

The Net Profit Margin also shows negative coefficients for all four regressions. Regressions two and three show statistically significant coefficients on a 1% level, while regression four is significant on a 5% level. This indicates that the Net Profit Margin has a negative impact on the Positive score. Data and time lag robustness can be assumed.

The Debt-to-Equity regressions show mixed results. While the regression with the 2010 data, shows a negative coefficient, the regression with the 2017 data has a positive coefficient implying a positive impact on the Positive Score. None of the coefficients are statistically significant.

Also having mixed results is the independent variable Total Assets. For the first regression, the coefficient is negative implying a negative impact on the Positive Score with a 5% statistical significance. While the second regression shows a positive coefficient with a 10%

statistical significance. The fourth regression, testing data robustness, shows the same results. The impact on the Positive Score, therefore, is not unambiguous.

The industry also appears to have no statistical influence. However, the country shows statistical significance of 1% for all four regression. The results, which are very similar to the regression for the Ethical Score, indicate a high importance of the country on the implications for the impact.

The R-Squared values again are relatively low, while the F-Scores are significant on a 1% level for all four regressions. Data and time lag robustness can be assumed.

Table 42 - Regression Results Combined PS

COM_PS	Reg1 $t_{10} \rightarrow t_{10}$		Reg2 $t_{17} \rightarrow t_{17}$		Reg3 $t_{17} \rightarrow t_{16}$		Reg4 $t_{Ø10,17} \rightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	10.7729***	0.0000	13.4751***	0.0000	13.5830***	0.0000	12.0636***	0.0000
logRevenue	1.6990***	0.0000	1.2977***	0.0005	1.5242***	0.0001	1.5903***	0.0000
logMarketCap	0.0164	0.9684	0.0768	0.8342	-0.1800	0.6531	-0.0931	0.8047
log#ofemployees	-0.0002	0.9682	-0.0019	0.5015	-0.0011	0.7311	-0.0029	0.3273
NetProfitMargin	-0.4998	0.1960	-0.2469***	0.0070	-0.2307***	0.0064	-0.3166**	0.0219
Debt-to-Equity	-0.1060	0.1812	0.0028	0.8259	0.0022	0.6585	-0.0042	0.8520
logTotalAssets	-0.0034**	0.0247	0.0001*	0.0594	-0.0004	0.5665	0.0001*	0.0865
Industry	-0.0196	0.8212	-0.0470	0.5659	-0.0488	0.5519	-0.0251	0.7433
Country	-1.4194***	0.0000	-1.4441***	0.0000	-1.3904***	0.0000	-1.4355***	0.0000
R-Squared	0.2374		0.1984		0.1970		0.2448	
F-Score	14.0117***		11.1042***		11.0092***		14.5867***	
Significance F	0.0000		0.0000		0.0000		0.0000	

The table presents the regression results of the Positive Score (PS) and the independent variables indicating the size of the firm for Germany, USA, and China combined.

The dependent variable is the Positive Score (PS), which is the sum of all negative scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.

Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Negative Score (NS)

When using the Negative Score as the dependent variable, only three independent variables have a statistically significant impact. The revenue has all positive coefficients which are all statistically significant on a 1% level. This indicates a clear positive impact of the revenue on the Negative Score with time lag and data robustness. However, these results are

counterintuitive due to the same positive impact of the revenue on the Ethical and Positive Score.
In contrast, the Market Capitalization depicts an unequivocal result. The coefficients are all negative implying a negative impact on the Negative Score, while the results before show a positive impact on the Positive and Ethical Score.
When looking at the number of employees as the independent variable, mixed results can be found. For the first regression, the coefficient is positive indicating a positive impact on the Negative Score. However, for all other three regressions the coefficients are negative implying a negative impact on the Negative Score. It has to be mentioned that all of the coefficients are statistically insignificant.
The Net Profit Margin has all negative coefficients, similar to the results for the Ethical Score and the Positive Score. This indicates a negative impact on the Negative Score. However, none of the coefficients are statistically significant.
The other independent variable that has statistically significant coefficients, is the Debt-to-Equity Ratio. It shows all negative coefficients with statistical significance for tow out of the four regressions on a 5% level. Therefore, the Debt-to-Equity ratio appears to have a negative impact on the Negative Score.
The Total Assets show an ambiguous picture. While the first and third regression show negative coefficients, the second and fourth show positive coefficients which, however, are zero. Therefore, the impact of the Total Assets appears to have no or a slightly negative impact on the Negative Score. The coefficients, however, are all statistically insignificant.
The industry, similar to the regression for the Ethical and Positive Score appear to have no statistically significant impact.
The country on the other side shows strong statistical significance. All coefficients are significant on a 1% level. Therefore, it appears to be very significant in which country the research is undertaken and results cannot be generalised over countries.

The R-Squared values, same as for the Ethical and Positive Score, are relatively low, while the F-Scores are significant on a 1% level for all four regressions. Data and time lag robustness can be assumed.

Table 43 - Regression Results Combined NS

COM_NS	Reg1 $t_{10} \longrightarrow t_{10}$		Reg2 $t_{17} \longrightarrow t_{17}$		Reg3 $t_{17} \longrightarrow t_{16}$		Reg4 $t_{Ø10,17} \longrightarrow t_{Ø10,17}$	
	Coefficient	p-value	Coefficient.	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	1.3524***	0.0000	1.4934***	0.0000	1.5140***	0.0000	1.4306***	0.0000
logRevenue	0.6794***	0.0000	0.6977***	0.0000	0.7129***	0.0000	0.7462***	0.0000
logMarketCap	-0.2127	0.1348	-0.1664	0.2769	-0.2153	0.1978	-0.2268	0.1303
log#ofemployees	0.0004	0.7898	-0.0010	0.4126	-0.0004	0.8767	-0.0007	0.5624
NetProfitMargin	-0.1143	0.3880	-0.0387	0.3083	-0.0365	0.2996	-0.0559	0.3073
Debt-to-Equity	-0.0209	0.4414	-0.0111**	0.0402	-0.0021	0.2979	-0.0197**	0.0274
logTotalAssets	-0.0003	0.5563	0.0000	0.9606	-0.0002	0.4283	0.0000	0.9254
Industry	0.0113	0.7035	-0.0086	0.8002	-0.0111	0.7457	0.0045	0.8819
Country	-0.3932***	0.0001	-0.4491***	0.0001	-0.4263***	0.0001	-0.4301***	0.0000
R-Squared	0.1903		0.1539		0.1509		0.1914	
F-Score	10.5777***		8.1622***		7.9721***		10.6485***	
Significance F	0.0000		0.0000		0.0000		0.0000	

The table presents the regression results of the Negative Score (NS) and the independent variables indicating the size of the firm for Germany, USA, and China combined.

The dependent variable is the Negative Score (NS), which is the sum of all negative scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.

Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Summary

For the combined regressions, the data set for the USA, Germany, and China has been combined into one regression. As previous, the regression is undertaken for three separate dependent variables, namely Ethical Score, Positive Score, and Negative Score.

When looking at the combined results, there are four main findings.

Firstly, the revenue has a positive impact on the Ethical and Positive Score. For all regressions the coefficients are statistically significant on a 1% level. Data and time lag robustness can be assumed. This indicates that the revenue has a positive impact on the Ethical or Positive Score. As the main body of literature found a positive impact of the revenue on the Ethical Scores, these regression outputs support the results by Ekatah et al. (2011), the Network for Business Sustainability (2020), Amine et al. (2020), Rönnegard (2013), Hansen (2004), Thorpe and Prakash-Mani (2003), Steger (2006), Weber (2008), and Knudson (2018). Counterintuitively, the regression also shows a positive impact of the

revenue on the Negative Score with a 1% statistical significance. This supports the results by Sipliä et al. (2020) and might highlight the reason for contradicting results.
The second significant output is visible for the Net Profit Margin. All three regression show negative signs indicating a negative impact of the Net Profit Margin for all three scores. However, only the coefficients for the Ethical and the Positive Score are statistically significant on a 1% and 5% level.
The third main outcome refer to the Total Assets. The results for this independent variable are mixed. The regression using the 2010 data shows a negative impact on the Ethical and Positive Score with a 1% statistical significance. However, the regression using the 2017 data shows a positive impact on both Scores. The statistical significance for both is on a 10% level. A possible explanation for these mixed results might be a possible time lag as time lag robustness cannot be assumed. The Total Assets might have a positive impact on the Ethical and Positive Score with time delay. Another explanation might be a shift in impact over time. More recently, the Total Assets might have a positive impact on the Ethical and Positive Score, which they might not have a few years ago.
The last and particularly relevant results can be found for the country variable. All coefficients for all three regressions show statistical significance on a 1% level. This indicates that the country has a relevant impact on the results and outputs. This adds to the literature as it might explain contradicting results. Most studies were undertaken for companies, industries or countries alone.
The industry as a dummy variable appears to have no statistically significant impact.
The Market Capitalization results show no statistical significance. But it is worth mentioning that for the first and second regression, the Ethical and the Positive Score have all positive coefficients indicating a positive impact of the market capitalization on the Ethical and Positive Score, while the coefficients for the Negative Score are negative indicating a negative impact. This corresponds to the findings by Dornean and Oanea (2018), Lee (2020), and Flammer (2011).
The Number of Employees appears to have a negative impact on the Ethical and Positive Score. All coefficients for both dependent variables are negative. For the Negative Score, the first regression shows a negative coefficient. However, none of the coefficients are statistically significant.
The last independent variable, the Debt-to-Equity Ratio, shows mixed results with mostly no statistical significance. The only statistically significant coefficients can be found for the

Negative Score. This indicates that the Debt-to-Equity Ratio has a negative impact on the Negative Score.

Concluding, it can be found that the revenue has a positive, significant impact on the Ethical, Positive, and Negative Score. The Net Profit Margin appears to have a negative effect on the Ethical and Positive Score, while the Debt-to-Equity Ratio appears to have a negative impact on the Negative Score.
The country is statistically highly significant and might be a possible explanator for differing results in the literature.

7.2.2.5 Summary

This chapter tries to investigate whether the size of the company has an impact on the Ethical Score of a company. In the literature there are two conflicting theories: The Slack Resource Theory (SRC) that states that bigger companies have a better corporate social performance and the Small Company Bias Theory (SCB) that states that smaller companies have a better corporate social performance.
One of the possible reasons two conflicting theories exist might be due to the definition of the companies' size. Therefore, all commonly size measurements are incorporated and further measurements are added. This thesis uses an OLS-regression to examine the impact of the companies' size on the Ethical Score and in order to depict an encompassing framework to add to recent literature.
As size measurements revenue, market capitalization, number of employees, and total assets are used. Further, this thesis adds by applying a self-created scoring system, that allows not only impact on the ethical behaviour, represented by the Positive Score, but also on the unethical behaviour, represented by the Negative Score.
Additionally, this thesis analyses three different countries, namely the USA, Germany, and China, separately as well as combined in order to investigate any country impact. Industries are also investigated throughout the countries. The time frame starts on the 01/01/2010 and ends on the 31/12/2017.
The regression is run three times with different dependent variables, namely the Ethical Score, the Positive Score, and the Negative Score. The independent variables are revenue, market capitalization, number of employees, net profit margin, debt-to-equity ratio, and total assets. Industry and country are added as dummy variables.

The results of the regressions show a complex picture. A summary table 48 has been produced that shows the results only when using ES.

Table 44 - Summary table of regression results

	USA				GER				CHI				COM			
	$t_{10} \rightarrow t_{10}$	$t_{17} \rightarrow t_{17}$	$t_{17} \rightarrow t_{16}$	$t_{Ø10,17} \rightarrow t_{Ø10,17}$	$t_{10} \rightarrow t_{10}$	$t_{17} \rightarrow t_{17}$	$t_{17} \rightarrow t_{16}$	$t_{Ø10,17} \rightarrow t_{Ø10,17}$	$t_{10} \rightarrow t_{10}$	$t_{17} \rightarrow t_{17}$	$t_{17} \rightarrow t_{16}$	$t_{Ø10,17} \rightarrow t_{Ø10,17}$	$t_{10} \rightarrow t_{10}$	$t_{17} \rightarrow t_{17}$	$t_{17} \rightarrow t_{16}$	$t_{Ø10,17} \rightarrow t_{Ø10,17}$
logRevenue	-0.4457	-1.1365	-0.1227	-1.0585	1.6474***	0.2636	0.8054	1.3072**	1,5281**	0.9597	1.2950	1.4889*	1.0196***	0.6260	0.8319**	0.8457**
logMarketCap	5.3780***	2.9531***	2.7052***	4.5962***	0.8065	0.9525*	0.6804	0.8617	-0.7864	-0.0114	-0.7757	-0.8827	0.2291	0.2862	0.0902	0.1682
log#ofemployees	0.7531	-0.4142	-0.3425	0.3342	-0.0065	1.2859***	1.0089**	0.5444	0.0062	0.0011	0.0012	0.0021	-0.0005	-0.0017	-0.0014	-0.0026
NetProfit Margin	-4.0228*	-3.0393	1.6738	-2.9024	-0.5845*	-0.2340**	-0.2433***	-0.3516***	3.3162**	2.0126	-0.3692	3.1567*	-0.3855	-0.2117**	-0.1979**	-0.2625*
Debt-to-Equity	-0.0142	0.0159	0.0047	0.0190	-0.4663	-0.0528	-0.0271	-0.2763	0.2283	0.0419	0.1297	0.1208	-0.0851	0.0140	0.0043	0.0154
logTotal Assets	-0.4563	0.7610	0.3531	0.1488	-0.6172	-0.5652	-0.7072	-0.8086	-0.0032**	0.0001*	0.0001	0.0002*	-0.0031**	0.0001*	-0.0002	0.0001

The table presents the summary of the regression results of the Ethical Score (ES) and the independent variables indicating the size of the firm for Germany, USA, China, and combined.

The dependent variable is the Ethical Score (ES), which is the sum of all negative scores in the screening. The independent variables are defined as follows: the logarithmised revenue [in bn $] (logRevenue), the logarithmised market capitalization [in bn $] (logMarketCap), the logarithmised number of employees (log#ofemployees), the Net Profit Margin (NetProfitMargin), the Debt-to-Equity Ratio (Debt-to-Equity), the logarithmised Total Assets [in bn $] (logTotalAssets), and the industry as a dummy variable.

Regression 1 (Reg 1) uses the data from 2010 for both, the dependent and the independent variables. Regression 2 (Reg 2) uses the data for 2017 for both, the dependent and the independent variables. Regression 3 (Reg 3) uses the data from 2017 for the dependent variable and from 2016 for the independent variables in order to check for a time lag. Regression 4 (Reg 4) uses the average of the data from 2010 and 2017 in order to check the robustness.

The revenue up to now has been mostly analysed in event studies for certain industries or on specific companies rather than the whole country. This thesis adds to the literature by analysing three countries combined.
The revenue shows only in the USA negative coefficients for the Ethical Score. All other coefficients are positive implying a positive impact of the return on the Ethical, Positive, and Negative Score. For the Negative Score in the USA, for all scores in Germany and for all scores in the combined regression, the coefficients are statistically significant. Except in the USA, the return therefore has a positive impact on all three scores making the results ambiguous.
The main body of literature suggest that a higher revenue is linked to higher Corporate Social Responsibility and ethical behaviour which the results of the regressions support. These results back up the Slack Resource Theory. However, as the revenue has a positive impact on the Ethical and Positive Score as well as the Negative Score, these results might highlight the existence of contradicting theories in literature. The positive impact on the Ethical and Positive Score supports the Slack Resource Theory, while the positive impact on the Negative Score supports the Small Company Bias Theory. To the author's knowledge, no study before differentiates between Positive and Negative Ethical Behaviour as a score. Therefore, this might be an explanation for the gap.

The market capitalization shows a clear picture for the USA, Germany, and all countries combined. The market capitalization has a positive, statistically significant on the Ethical and Positive Score and a negative on the Negative Score. Therefore, the higher the market capitalization the higher the ethical scores and the lower the market capitalization the higher the Negative Score. Hence, the bigger the company the better the ethical performance. These results support the Slack Resource Theory and the findings of Dornean and Oanea (2018), Lee (2020), and Flammer (2011).
Market Capitalization was the main variable in the research of Luther et al. (1992) who suggested that smaller companies outperform larger companies with regards to its ethical behaviour. These results cannot be supported by this research.
The only exception is China, where the market capitalization has a negative impact on all three scores. However, the Chinese results are not statistically significant.
The impact of the number of employees varies across the countries. In the USA, for 2010 a positive impact on the Ethical, Positive and Negative Score can be found while for 2017, a negative impact occurs. The regressions show also a possible time lag effect.

For Germany, the opposite can be found. The 2010 regression results show a negative impact on all three scores, while for the 2017 regression, the results are positive and statistically significant for the ES and PS. Therefore, a positive impact of the number of employees on both scores can be assumed.
In China, all coefficients are positive with one statistically significant coefficient for PS. Therefore, the number of employees has a positive impact on the Positive Score in China. The coefficients for the NS are also positive but not statistically significant.
When combining all countries, all coefficients are negative except the 2010 regression for the NS implying a negative impact on the scores. However, none of the coefficients are statistically significant. Therefore, no unambiguous picture can be determined.
When looking at the Net Profit Margin, the regression results from China again differ from the other results. For the USA, Germany, and combined, negative and partially statistically significant coefficients can be found. This implies that the Net profit Margin has a negative impact on all three score. In China, however, the Net Profit Margin appears to have a positive impact on the Ethical and Positive Score and a negative impact on the Negative Score. The results for ES and PS are statistically significant. Therefore, no clear picture can be found for the Net Profit Margin.
For the Debt-to-Equity, the results also vary across countries. While the results for ES and PS in the USA are inconclusive, the Debt-to-Equity ratio has a statistically significant, negative impact on the Negative Score. In Germany, the Debt-to-Equity ratio has a negative impact on all three scores, with the PS being statistically significant. In contrast, the Debt-to-Equity ratio has a positive impact on all three scores in China of which none are statistically significant. When looking at the combined results, the only statistically significant coefficients can be found for the NS and show a negative impact of the Debt-to-Equity ratio on the Negative Score.
For Total Assets, the results again vary across countries. In Germany, the results are clear: The Total Assets have a negative impact on the Ethical and Positive Score and a positive, statistically significant impact on the Negative Score. This contradicts the results by Cho et al. (2019). In the USA, China, and combined, the coefficients vary depending on the year. Mainly, the 2010 regression shows a negative impact on all three scores except the USA, while the 2017 regression show a positive impact. Therefore, a time delay might be a possible reason to explain the varying regression results.
The industry only has a statistically significant impact in Germany. All other countries do not show statistical significance.

A crucial finding is the impact of the country. For all three regressions, the country variable shows statistical significance on a 1% level. Therefore, the country the analysis is undertaken plays a crucial part on the results. As many studies look at only one country (Luther et al. (1992), Lee (2020), Dornean and Oanea (2018)), this might be a possible reason for contradicting outputs. It appears that the results of one country are neither transferable nor inductive.

7.3 Conclusion

In conclusion, the revenue shows mixed results on the impact on the ES, PS and NS. For Germany, China, and combined the impact is positive on all three, while in the USA it shows mixed results. The Market Capitalization has a positive impact on the Ethical and Positive Score and a negative impact on the Negative Score, supporting the Slack Resource Theory. The only exception is China however, with no statistical significance.

The number of employees also shows very mixed results. The results differ from 2010 to 2017 and across countries.

The Net Profit Margin shows a negative impact on the Ethical and Positive Score for the USA, Germany, and combined and shows a positive impact for ES and PS in China.

The impact of the Debt-to-Equity ratio also varies widely across countries. In China, the impact is positive for all three scores, while in Germany the impact is negative. In the USA, impact for 2010 is negative, while it is positive for 2017. Similar results can be found for the combined results.

For the Total Assets only the results in Germany are unambiguous. They have a negative impact on the ES and PS and a positive on the NS. For the other countries and combined, the 2010 regression show a negative impact, while the 2017 regressions show a positive. The results are therefore unclear.

The industry only has a statistically significant impact in Germany. All other countries do not show statistical significance.

The country has a crucial impact on the results as it shows 1% statistical significance. Therefore, results of one country are neither transferable nor inductive.

Chapter 8

Summary and Conclusion

8.0 Introduction

Morals and Markets, having your personal ethical considerations be part of your investment decision is an increasing aspect of investing all over the world. With that, the interest in the financial performance of the so called Ethical Investing is growing and has been researched by many. However, no censuses neither in the academic nor in the practitioner world on whether the financial performance of Ethical investing is superior, inferior or similar to conventional investing can be drawn.

The varying results might be due to different reasons: different definitions (Sparkes (2001), Sandberg et al. (2009)), different screening methods (Diltz (1995), Diltz (1995), Barnett and Salomon (2006), Tippet and Leung (2001)), difficulty and variation of assessing social performance (Garcia-Castro et al., 2010 and Gangi et al., 2022), different time frames (Garcia-Castro et al., 2010, Ferrat et al., 2021), and different and/or unsuitable measurement return metrics (Gelerna et al., 2008). Further, this thesis hypothesises that the results might vary due to different countries, the neglection of industries and the partial neglection of the company size.

This thesis tries to enhance transparency and comparability by creating an own Ethical Scoring System and applying it to OLS-regressions, Sensitivity Analyses, Descriptive Statistics as well as other statistical tests. Special emphasis is put on the influence of country, industry and company size on the impact of Ethical Behaviour on Financial Performance to shed new light on this partly well-researched field which however has many conflicting results.

8.1 Summary of main findings

The findings of this thesis can be categorised by four topics: The first topic is the Score Analysis. Due to a self-developed Ethical Scoring System, this thesis is able to analyse the Ethical Scores of 376 companies in three countries in nine industries. Firstly, an overall score analysis has been undertaken, secondly, it is divided by country and thirdly divided by industry. The second topic is the analysis of the influence of the country on the impact of Ethical Behaviour on the financial performance. This thesis assesses the USA, Germany, and

China. The third topic is the influence of the industry on the financial impact of Ethical Behaviour. It is differentiated between the nine main industries. Lastly, the impact of size is examined with further regard to the two competing theories, the Slack Resource Theory and the Small Company Bias.

8.1.1 Score

In general, there is an overall growth in ethical behaviour that exceeds the minimal growth in unethical behaviour indicating a trend towards ethical behaviour and possibly increased transparency.

The USA has the highest overall scores for PS and ES but also the highest for NS indicating that it is tilted towards extremer ends which might be due to high transparency standards and further has the best ethical behaviour amongst the three countries. Germany appears to have a more balanced approach with the lowest growth rate, the lowest overall NS and the middle score for PS and ES. China appears to have not put the highest priorities on ethical behaviour within the corporate culture but as it has the highest growth rate in PS and ES and the lowest in NS, this could be an indicator of a more recent emphasis on the topic.
Overall it can be stated that the Ethical Scores vary significantly across countries with might be an important factor when comparing studies from different countries.

When analysing industries, similar differences and therefore importance can be found.
In total, the Positive Score as well as the Ethical Score grow more than the Negative Score indicating a trend toward ethical behaviour. The energy industry shows the highest scores for PS as well as NS in both 2010 and 2017 indicating a high involvement in activities that are deemed both negative and positive. The highest ES in 2017 has the Consumer Staples industry. Another industry that shows interesting results is the telecommunications industry with the lowest PS and ES and the second-lowest NS implying that the telecommunication industry is therefore neither involved in ethical nor unethical activities. The IT industry has the lowest overall NS but also low to medium-high PS and ES. The information technology industry appears to have the lowest involvement in negative activities but also a low to medium involvement in ethical activities.
Industry appears to be a statistically significant and therefore crucial factor when analysing the impact of ethical behaviour on financial performance.

8.1.2 Country

Due to the self-developed Ethical Scoring System, the same time frame applied as well as various return metrics used, this thesis enables transnational comparability and by that contributed to the current state of research. The return metrics used are Average Abnormal Return (aAR), Buy-and-Hold Return (BHAR), as well as Cumulative Abnormal Return (CAR) to address the gap in literature stated by Galema et al. (2008). A descriptive statistical analysis, OLS-regressions analysis, Sensitivity Analysis as well as a Kruskal-Wallis Test has been done.

All confirm that there is a statistically significant difference between the countries which is a major contribution and possible explanation for differing results in literature.

The Sensitivity Analysis shows that with an increase in the Ethical Score a decreasing return appears in the USA while the return increases in Germany. For China and combined, the results vary with the return metric.

The OLS-regressions further confirm differences in results with regards to the countries and partly the return metric. For the USA, AR and BHAR show no statistically significant impact of ethical behaviour on the financial performance, while CAR shows a slightly negative impact. Germany shows the same results. China shows a slightly negative impact regardless of the return metric. When analysing all three countries combined, the results vary with each return metric.

Concluding, the country as well as the return metric play a crucial factor in determining the impact of ethical behaviour on the financial performance.

8.1.3 Industry

The results of the impact of ethical behaviour on financial performance vary due to different reasons. One that is not looked into yet is the industry.

This thesis differentiates between the nine main industries, namely consumer discretionary (CD), consumer staples (CS), energy (EN), finance (FI), healthcare (HC), industrials (IN), information technology (IT), telecommunication (TC), and utilities (UT). Each of the industries is numbered and included as a dummy variable in the OLS-regression in order to detect statistical significance.

It is found that the Consumer Staples and Energy industry show no impact of ethical behaviour on the return.

The Consumer Discretionary, Finance and Industrials Industry indicate that ethical behaviour is penalised while unethical behaviour is financially rewarded.

The HealthCare, Information Technology, Telecommunication, and Utility industry mainly show that ethical behaviour is financially rewarded while unethical behaviour is penalised. However, these results are not valid in each of the three countries. They depend on the country and the return metric.

It is found that the industry has a statistically significant on the impact of the Ethical behaviour on the financial performance, which is a major contribution of this thesis. The findings might be a further explanation for the mixed results in the literature and including industry as an independent variable might be beneficial for future studies regarding the financial performance of ethical investment.

8.1.4 Company Size

There are two conflicting theories: The Slack Resource Theory (SRC) that states that bigger companies have a better corporate social performance and the Small Company Bias Theory (SCB) that states that smaller companies have a better corporate social performance. A possible explanation for the existence of the conflicting theories might be due to differing definitions of a company's size. Therefore, this thesis uses all common size measurements suggested by other researchers, namely revenue, market capitalization, number of employees, and total assets. Four cross-sectional OLS-regression are used to further check for time lag and data robustness. The analysis is additionally split into countries.

The results show that the results vary with different size measurements and also scores (ES, PS and NS) which might be an explanation for the existence of the two theories and is therefore a contribution to literature.

Revenue shows counterintuitively a positive impact on all three scores for Germany, China and Combined, but shows mixed results for the USA.

The Market Capitalization has a positive impact on ES and PS and a negative on NS which supports the Slack Resource Theory (with China as the exception, where it has no statistical influence.

Number of Employees also show mixed results and differs across time and countries.

Total Assets have a positive impact on ES and PS and a negative on NS for Germany supporting the Slack Resource theory. However, for other countries the results vary over time and are therefore unclear.

Concluding, it can be said that country, as well as the industry have a significant influence on the impact of Ethical Behaviour on the financial performance and might therefore be an explanator for differing results in literature. When analysing the impact of the company size, return metric as well as scores produce different results. This might be an explanator for the two existing theories.

8.2 Contributions

At the moment, varying results for the financial performance of Ethical Investing exist in the literature. These were due to multiple methodological issues that this thesis aims to address. Accordingly, this thesis contributes in three major aspects: firstly, theoretically by developing an own definition, secondly methodologically by developing an Ethical Scoring System and integrating multiple size and return metrics, having an equal time frame across the sample and further adding forms of analysis such as Sensitivity Analysis, Kruskal-Wallis test and Score Analysis. Thirdly, this thesis contributes empirically by integrating the impact of country, industry and size. Lastly, this thesis contributes practically by providing practical implications to investment industry and investors.

The theoretical contribution is the consideration of different definitions of Ethical Investment (as criticised by Sparkes (2001), Sandberg et al. (2009) and undertakes a comprehensive comparison of used definitions and develops its own definition that is used for the whole thesis which allows for comparability.

When looking at the methodological contributions, this thesis applies the most commonly applied approach, screening, for all companies in this research, which allows for comparability. It further differentiates between Negative Score (NS), Positive Score (PS), and Ethical Score (ES) which allows for a deeper analysis and has never been undertaken to this extent before. The Descriptive Statistical Analysis of Score shows that there is a growth in ethical behaviour in all three countries while the unethical behaviour increases only slightly.

One of the biggest contributions of this thesis is the development of an own Ethical Scoring System (ESS). Garcia-Castro et al. (2010) discussed the difficulty and variation of assessing social performance. Gangi et al. (2022) also emphasised the low convergent validity between ratings. This thesis adds to this by developing the ESS to allow for objectivity, transparency, comparability, and a criteria analysis. This is to the author's knowledge the first study to do

this at a large scale. This further adds to the gap mentioned by Boffo and Patalano (2020) who call for "greater efforts toward transparency, consistency of metrics, and comparability of rating methodologies […]" as they found that ESG ratings of individual companies are produced by a range of analysts are based on different methods and are poorly correlated. This ESS also allows for score analysis on multiple levels with the differentiation between ES, PS, and NS. Applying the ESS in all three countries, a transnational comparison is also enabled. The results show that ethical behaviour varies between countries.

Many studies use different and varying time frames which complicates comparability (Garcia-Castro et al., 2010). This study applies a long-term time frame to all analyses which therefore makes it comparable.
Also, Gelerena et al. (2008) found that studies use different and/or unsuitable return metrics which impedes comparability. This study uses multiple return metrics, namely average Abnormal Return (aAR), Buy-and-Hold Return (BHAR), and the Cumulative Abnormal Return (CAR), to allow for an extensive analysis and also a comparison between the return metrics.
Additionally, due to the same screening method, return metrics used, and same time frame applied, this study allows for transnational comparability. The focus is put on three big countries, namely Germany, USA, and China. The results show that the impact of ethical behaviour on the financial performance varies across the return metrics, making it a possible explanator for mixed results in literature.
Furthermore, multiple size measurements across all three countries have been applied, namely revenue, market capitalization, number of employees, total assets. This gave valuable insight to the conflict between Slack Resource Theory and Small Company Bias as the impact of size varies with different size measurements. This contributes to the current state of research as it might explain the existence of two incompatible theories.

Additionally, it is the first to undertake a score analysis for the Negative Score, Positive Score, as well as Ethical Score, do the Kruskal-Wallis test in this setting, and to perform a sensitivity analysis.

An important, empirical contribution is the inclusion of industry as a crucial variable. No study to the author's knowledge has examined the influence of industries on the impact of ethical investment on the financial performance. This study is the first to examine the nine

main industries and does find a significant impact of the industry on the impact of ethical behaviour on financial performance. Some industries show no impact of ethical behaviour on the return, while other industries indicate that ethical behaviour is penalised while unethical behaviour is financially rewarded and vice versa. This is an especially important finding for investment practitioners.

The practical big contribution is the impact in the practitioner world. The results have an impact on the academic literature and further research but also have a practical application for industries, investment practitioners, government policies and business leaders. Ethical Investment is able to generate better but also less return depending on multiple variables. Confirmed by Sensitivity Analysis, OLS-regressions and Kruskal-Wallis Test, the effect of ethical behaviour on the financial performance varies between the USA, Germany and China, making country a crucial variable for the investment decision. Further, the industry is another crucial factor for determining whether the impact of ethical behaviour on the financial performance is positive, neutral or negative. The industry implications also vary between countries.

Due to the existence of conflicting theories, investment practitioners might be biased towards large or small companies. This thesis shows that ethical behaviour is not determined by a company's size which is a further valuable insight for the investment process.

If the above results are considered, an enhanced investing process and investment decisions might be enabled.

8.3 Limitations and suggestions for further research

While this thesis tries to analyse the impact of ethical behaviour on the financial performance with multiple perspectives, limitations of this research has to be mentioned and suggestions for further research are given.

This study covers at least 85% of the equity universe in the USA, Germany, and China. However, the results may vary in other countries drastically. Therefore, future research should be carried out in other countries as well.

Further, the generalizability of the results over time might be difficult. With increasing popularity of Ethical Investment, the results may vary in the past and the future. Future research may therefore look into other time periods and time frames as this study only covers a long-term analysis.

Assessing social/ethical behaviour and performance is always difficult and subject to discussion. This thesis used publicly available data as well as information from Sustainability Reports. Due to the incentive of exaggerating of ethical behaviour and understating unethical behaviour, the data might not always be reliable and valid. Further, the transparency of the data varies between countries. Especially China does not always offer transparent data. Future research might dive deeper into this limitation.

Furthermore, limited time and data also impacted this study. The author wanted to investigate the impact of ownership, especially the impact of institutional investors, on ethical behaviour. However, data was not publicly available. Ownership might be an interesting factor and topic for future research.

A further limitation due to time and resource restrictions is that no continuous panel dataset was applied. However, all three countries were quite economically stable throughout the study period and also, the development of the Ethical Scores was relatively steady. Therefore, this should not have great significance for the results.

Another limitation of this study is the lack of previous studies in the research field on the impact of industry on the relation between ethical behaviour and financial performance. As this is, to the author's knowledge, the first study to include industry as an influential variable, there was no foundation to build this research upon. As this study finds industry to be an

important variable, future research could build upon this especially explanatory research needs to be undertaken.

Appendix

Table 49 - EIRIS Green and Ethical Funds Directory

Aberdeen Ethical Engagement UK Fund	Aberdeen Ethical World Fund
Aegon Ethical Cautious Managed Fund	Aegon Ethical Corporate Bond Fund
Aegon Ethical Equity Fund	Allchurches Amity Fund
AXA UK Ethical Fund	Banner Real Life Fund
Barchester Best of Green Life Fund	Barchester Best of Green Life Offshore Fund
Barchester Best of Green Pension Fund	CIS FTSE4Good Tracker Fund
CIS Sustainable Leaders Trust	Credit Suisse Fellowship Fund
Credit Suisse Multi Manager Ethical Fund	Direct Line FTSE4Good Tracker Fund
F&C Ethical Bond Fund	F&C Global Climate Opportunities Fund
F&C Stewardship Growth Fund	F&C Stewardship Income Fund
F&C Stewardship International	Family Charities Ethical Trust
Friends Provident Stewardship	Friends Provident Stewardship
Friends Provident Stewardship	Friends Provident Stewardship
Friends Provident Stewardship	Friends Provident Stewardship
Friends Provident Stewardship	Halifax Ethical Fund
Henderson Global Care Growth	Henderson Global Care Income Fund
Henderson Global Care Managed Fund	Henderson Industries of the Future Fund

Homeowners Friendly Society FTSE4Good Fund	HSBC Amanah Global Equity Index Fund
HSBC GIF Sustainability Leaders Fund	Impax Environmental Markets Investment Trust
Impax Environmental Markets OEIC	Insight Investment Ethical Fund
Insight Investment Evergreen Fund	Jupiter Ecology Fund
Jupiter Environmental Income Fund	Jupiter Global Green Investment Trust
King & Shaxson Ethical Balanced Income Fund	King & Shaxson Green Solutions Fund
Legal & General Ethical Pension Fund	Legal & General Ethical Trust
Lincoln Green Life Fund	Marks & Spencer Ethical fund
Marlborough Ethical Fund	Merchant Investors Assurance Ethical Cautious Managed Fund
Norwich Sustainable Future Absolute Growth Fund	Norwich Sustainable Future Corporate Bond Fund
Norwich Sustainable Future European Growth Fund	Income Life Fund International Life Fund Life Fund
Managed Life Fund Managed Pension Fund Pension Fund	Safeguard Optimiser Fund
Norwich Sustainable Future Global Growth Fund	Norwich Sustainable Future Managed Fund
Norwich Sustainable UK Growth Fund	Norwich Union Ethical UK Equity Fund
Old Mutual Ethical Fund	Prudential Ethical Trust
Quadris Environmental Fund	Rathbone Ethical Bond Fund
Royal London Ethical Bond Trust	Schroders Global Climate Change
Scottish Widows Environmental Investor Fund Scottish Widows Ethical Fund	Skandia Ethical Fund
Sovereign Ethical Fund	Standard Life Ethical Corporate Bond Fund
Standard Life Ethical Life Fund	Standard Life European Equity Ethical Fund
Standard Life Pension Ethical Fund	Standard Life UK Ethical Fund
SVM AllEurope SRI Fund	SWIP Global SRI Fund
SWIP Islamic Global Equity Fund	SWIP Pan-European SRI Equity Fund

Table 49 shows the included funds from the EIRIS Green and Ethical Funds Directory.

Table 50 - Studies that find equal performance of ethical to conventional investments[1]

Researcher	Sample Period	Performance measurement	Benchmark	Selection of social component
Rudd, 1981	1986 – 1994	Jensen α, beta	Matched unit trusts	Ethical unit trust
Hamilton et al, 1993	1981 – 1990	Jensen α	NYSE	Ethical mutual fund
Diltz, 1995	1989 – 1991		Common stock portfolio	Socially screened portfolio
Saurer et al., 1997	1986 – 1994	Jensen α, Sharpe, Average returns	S&P 500, CRSP Value Weights market index	DSI 400 Index
Guerard, 1997	1987 – 1996	Average returns	Vantage Global Advisor 1200 Equity Index	Social Index
Gregory et al, 1997	1986-1994	Jensen α	HSCI, FTASI	Ethical mutual funds
Kahn, Lekander, Leimkuhler, 1997	1987-1996	Return	S&P 500	Tobacco stocks
DiBartolomeo and Kurtz, 1999	1990-1999	Jensen α, Treynor	Russel 1000	Social Index
Teoh et al., 1999	1986 – 1989	Average returns	No	Analysis on companies divesting from South Africa
Goldreyer et al., 1999	1981 – 1997	Jensen α, Sharpe, Treynor		Ethical mutual fund, incl. equity, bond and balanced funds
Cummings, 2000	1986 – 1994	Jensen α, average returns, Treynor, Sharpe	3 Australian market based indices (both large and small cap)	Ethical mutual fund
Statman, 2000	1990 – 1998		S&P 500	Domini 400
Asmudson and Förster, 2001			TSE 300 Index	Canadian ethical mutual funds
Hussein, 2004	1996 – 2003		FTSE Aoo-World index	FTSE Global Islamic Index
Schröder, 2004	2000 – 2002	Jensen α, Sharpe	MSCI	Social Index, ethical mutual fund
Bauer et al, 2005	1990 – 2001	Jensen α, Carhart	Worldscope market	103 ethical mutual funds

[1] „Ethical requirement and financial interest: a literature review on socially responsible investing “, Wallis, M., Klein, C. Bus Res, Springer Link, Business Research, October 2015, Volume 8, Issue 1, pp.61-98

			value equity index, Fama & French market index	
Bello, 2005	1993 – 2001	Jensen α, Sharpe, eSDAR	S&P 500, DSI 400	Ethical mutual fund
Kreander et al., 2005	1995 – 2001	Jensen α, Sharpe, Treynor	Matched pair	60 European ethical mutual funds
Bauer et al, 2006	1992 – 2003	Carhart's α	Worldscope Australia Index	Ethical mutual fund
Boasson, E. et al., 2006	Fund inception – 2003	Average return, standard deviation, expense ratio	Market portfolio	Ethical mutual fund
Mill, 2006	1982 – 2004	Jensen α	No	Ethical mutual fund
Bauer et al, 2007	1994 – 2003	Jensen α, average returns, Sharpe, Carhart's α	Canadian Stocks in Wordscope database	Ethical mutual fund
Fernandez-Izquierdo, Matallin-Saez, 2008	1998 – 2001	Multifactor regression model	Ibex 35, International Financial Analyst index, MSCI	Ethical mutual fund
Amnenc & Sourd, 2008	2002 – 2007	Jensen α, Sharpe	SBF 250, DJEuroStoxx, DJ Stoxx, MSCI	Social Index, ethical mutual fund
Cortez et al, 2009		Return	Conventional benchmark	Seven socially responsible mutual funds
Cengiz et al, 2010	1991 – 2009	Treynor, Sharpe, eSDAR, Treynor-Black	World Index Datastream	Ethical mutual fund
Humphrey, Lee, 2011		Fama French, Carhart, Jensen	Conventional funds	Australian SRI
Natarajan and Dharani, 2012	2007 – 2011	Average return		Sharia compliant investment

Table 50 presents all studies that find equal performance of ethical to conventional investments. The researcher, the sample period, the performance measurement, the chosen benchmark as well as the selection of social component has been listed. The table is listed chronologically.

Table 1 - Studies who find underperformance of ethical over conventional investments

Researcher	Sample Period	Performance	Benchmark	Selection of social

		measurement		component
Berss, 1991			S&P 500	Social funds
Müller, 1991	1984 - 1988	Jensen α, Treynor	Vanguard Index 500	Ethical mutual funds
Teper, 1992	1979 – 1989	Total return	S&P 500	Ethical mutual funds, KLDD 400 Index
Kahn et al, 1997	1987 – 1996	Total return	S&P 500	Tobacco companies excluded from S&P 500
Gregory, Matatko, Luther, 1997				SRI portfolios
Tippet, 2001	1991 – 1998	Jensen α, Treynor	All ordinaries accumulation index (Australia)	Ethical mutual funds
Geczy et al., 2005	1999 – 2001	Sharpe	Customized benchmark	Ethocal mutal funds
Jones, Laan, Frost, Loftus, 2007	1986 – 2005	CAPM, Jensen α		89 Australian SRI funds
Renneboog et al., 2008		Return, Jensen α,		SRI funds in Europe, North America, Asia-pacific
Iraya and Musyoki, 2013	2007 – 2011	Return, Sharpe, F-and t-test	NSE 20-share index firms	20 negative screened firms (2 portfolios)
Trinks, Scholtens, 2017	1991 – 2012	Return, Carhart	None	Negative screened SRI portfolio

Table 51 presents all studies that find underperformance of ethical to conventional investments. The researcher, the sample period, the performance measurement, the chosen benchmark as well as the selection of social component has been listed. The table is listed chronologically.

Table 2 - Studies who find overperformance of ethical over conventional investments

Researcher	Sample Period	Performance measurement	Benchmark	Selection of social component
Moskowitz, 1972	1972	Average return	Against each other	67 ranked firms
Grossman and Sharpe, 1986	1960 – 1983	Jensen α, Treynor	NYSE, S&P 500	Construction of South Africa-free portfolio
Luther et al., 1992	1972 – 1990	Jensen α, Treynor, eSDAR	FT all sharpe, MSCIP	15 Ethical unit trusts (UK)
Cohen, Naimon, 1995	1987 – 1991	Return on asset, return on equity, total return to shareholder	Low value portfolio	High value portfolio
Diltz, 1995			No	Screen analysis
Mallin et al., 1995	1986 – 1993	Jensen α, Treynor, eSDAR, Sharpe	No	Ethical mutual funds
Hart, Abujy, 1996		Return on asset, sales, equity	Conventional benchmark	Green investment portfolio
Klasse, McLaughlin, 1996		Return	None	Environmental events and announcements
D'Antonio et al, 1997	1980 – 1996	Jensen α, average returns	LCB	KLD 400
Gregory, Matatko, Luther, 1997			Small company index	Ethical unit trust
Russo, Fouts, 1997		Return, correlation	S&P 500	Environmentally conscious portfolio
Travers, 1997	1992 – 1997	Jensen α, average return	MSCI EAFA	Ethical mutal funds
DiBartolomeo and Kurtz, 1999	1990 – 1999	Jensen α, Treynor	S&P 500	Domini 400
D'Antonio et al., 2000	1990 – 1996	Jensen α, average returns, eSDAR	S&P 500, LCB	KLD 400
Statman, 2000	1990 – 1998	Jensen α, eSDAR, average return	S&P 500	Social index, ethical mutual fund
Bragdon and Karash, 2002	1997 – 2001	Jensen α, CAGR	MSCI, S&P 500	Global LAMP Index
Epstein and Schnietz, 2002	1999	Jensen α, Treynor	No	Split of Fortune 500 in environmental, labour and non-abusive firms
Gompers et al., 2003	1990 – 1998	Tobin's Q	No	Construction of

				corporate governance index
Derwall et al., 2005	1995 – 2003	Jensen α	No	Self-assessment of eco-efficiently ranked portfolio
Hussein and Omran, 2005	1995 – 2003	CAPM	Subdivision in two parts to compare bull and bear market conditions	Dow Jones Islamic indices
Shank et al., 2005	2000 – 2003	Jensen α, Treynor	NYSE	Ethical mutual funds, fund of most valued SR firms
Hill et al., 2007	1995 – 2005	Jensen α, Treynor	S&P 500, NIKKEI 225, FTSE 300	Ethical mutual funds
Kempf und Osthoff, 2007	1992 – 2004	Jensen α	S&P 500, DSI 400	Best-in-class approach, positive, negative screening of index
Mercer.com, 2007				ESG factors
Izquierdo and Saez, 2008			Spanish retail market	Spanish ethical investment funds
Tripathi and Bhandari, 2012			Indian benchmarks	Indian green and SR stocks
Yu, 2014	1999 – 2009	Propensity-score-matching, return		Ethical mutual funds
Tripathi and Bhandari, 2015	2009 – 2014	Sharpe, Treynor, Jensen α, information ratio, Fama's decomposition measure, t-test, growth regression equation	S&P BSE Sharia 500 Equity Index, CNX 500 Equity Index	Ethical mutual funds
Roy, 2017		Return	Low SR ratings	High SR ratings

Table 52 presents all studies that find overperformance of ethical to conventional investments. The researcher, the sample period, the performance measurement, the chosen benchmark as well as the selection of social component has been listed. The table is listed chronologically.

Table 53 - Overview of surveys undertaken in the field of ethical and socially responsible investment

Author	Title	Country	Population, #ethical investors
Rosen et al., 1991	Social issues and socially responsible investment behaviour: a preliminary empirical investigation	USA	Individual SR investors into the Calvert Social Investment Fund (Washington, DC) and the Working Assets Money Fund (San Francisco, CA) (random sample, N=400)
Anand and Cowton, 1993	The ethical investor: exploring dimensions of investment behaviour	UK	Clients of EIRIS Services Limited (self-selection) #:125
Lewis and Mackenzie, 2000	Morals, money, ethical investing and economic psychology	UK	Individual ethical investors from Friends Provident and NPI, #1146 ethical investors
Tippet and Leung, 2001	Defining ethical investment and its demography in Australia	AU	Members of the Australian Shareholder's Association A(SA) (random sample, N=300), clients of a private financial adviser specializing in ethical investment (random sample, N=99) and members of the equity investing Australian public (rs, N=300)
McLachlan and Gardner, 2004	A comparison of socially responsible and conventional investors	AU	Current clients of several Australian investment service companies, including some that advertised only „ethical" investment products #:54
Vyvyan et al., 2007	Socially responsible investing: the green attitudes and grey choices of Australian investors	AU	Employees and members of two large Queensland organizations, #318, no differentiation between conventional and ethical investors,
Haigh, 2008	what counts in social managed investments: evidence from an international survey	Australasia, Nth. Am., EU	Print and online advertisements in diverse media, emailed advertisements to association members, #:206
Nilsson, 2008	Investment with a conscience: examining the impact of pro-social attitudes and perceived financial performance on socially responsible investment behaviour	SE	Swedish clients of a European mutual fund provider that offers mutual funds, #:439
Nilsson, 2009	Segmenting socially responsible mutual fund investors: the influence of financial return and social responsibility	SE	Customers of an SRI mutual fund provider (rs, N=2000), 563 SR-investors
Junkus and Berry, 2010	The demographic profile of socially responsible investors	USA	Members of the American Association of Individual Investors (ca.85,000); #:1650
Cheah et al.,2011	Drivers of corporate social responsibility attitudes: the demography of socially responsible investors	20 countries	Survey of individual stakeholder attitudes towards CSR published by GLobeScan Ltd: individuals (investors and non-investors) (fully stratified, representative sample of approx.1,000 respondents from each of 20 countries), #2464
Jansson and Biel, 2011	Motives to engage in sustainable investment - a comparison between institutional and private investors	SE	Employees from Swedish investment institutions, private investors (random sample of Swedish population between 30 and 65 yrs), institutional investors (sampled among officials that mainly invest their capital in sot market) #: no differentiation between conventional and ethical investors
Sandberg and Nilsson, 2011	Conflicting intuitions about ethical investment: a survey among individual investors	SE	SRI individual fund investors recruited from the database of a large Swedish bank (random sample, N=2,000); #:369
Perez-	Profiling socially responsible investors:	AU	Australian investors from RIAA (Responsible Investment

Gladish et al., 2012	Australian evidence		Association Australasia), #:145
Schaefer and Gromer, 2011	The demand of sustainable property investments in Germany. An explorative empirical study	GER	Institutional investors in Germany (N=116)
Escrig-Olmedo et al., 2013	Sustainable development and the financial system: society's perceptions about socially responsible investing	ESP	Self-administered survey among Spanish individuals (N=525), #:20 of (345 valid responses)
Bauer, Smeets, 2014	Social identification and investment decisions	NIE	survey data from retail clients of the only two banks in the Netherlands that exclusively offer socially responsible investment products and saving accounts; 1/2 invest exclusively, whereas other hand holds at least one conventional investment account
Rield, Smeets, 2014	Social Preferences and Portfolio Choice	U.S.	analysis of investor's choice by American investment funds and related to their personal profile
Dorfleitner and Utz, 2014	Profiling German-speaking socially responsible investors	GER	SR and conventional private or institutional investors or asset managers (SR association members, customers of SR mutual fund managers or conventional fund managers, advertising on SRI-related Web sites, several banks, foundations and academic colleagues), #:65
Borgers and Pownall, 2014	Attitudes towards socially and environmentally responsible investment	NLD	Dutch society/households: survey carried out by CentERdata (representative sample, N=2,878), #:1,766 respondents of at least 20 years of age, but no differentiation between conventional and ethical investors
Jansson et al., 2014	Should pension funds' fiduciary duty be extended to include social, ethical and environmental concerns? A study of beneficiaries' preferences	SE	Swedish residents (in the working ages 18-64 years) obtained from the official tax payer register (rs,N=3,500); #:1,119 respondents, but no differentiation between conventional and ethical investors
Pfeifer, 2014	Fund loyalty among socially responsible investors: the importance of the economic and ethical domains	USA	Mennonite Mutual Aid (MMA) Praxis Mutual Funds investors (rs, ca. 800); #:499
Wins and Zwergel, 2015	Comparing those who do, might and will not invest in sustainable funds - A survey among German retail fund investors	GER	Ethical fund investors (investment fund-related fora/Web sites, foundations, colleagues, etc.); #:60
Wiesel, M., Myrseth, K., Scholtens, L., 2017	„Social preferences and SRI", survey of US investors whether social preferences can explain three measures of engagement in SRI: interest in SRI, history of SRI, and proportion currently investing in SRI	U.K.	stronger social preferences => more SRI

Table 53 gives a comprehensive overview of surveys undertaken in the field of ethical and socially responsible investment. The author, title, country, and population/ number of ethical investors has been listed. The table is listed chronologically.

Table 54 - Score Analysis for Consumer Discretionary within countries

		2010			2017		
		PS	NS	ES	PS	NS	ES
Mean	USA	11.2069	1.5172	9.6897	13.6207	1.5862	12.0345
	GER	8.9474	0.3158	8.6316	11.5789	0.6316	10.9474
	CHI	5.0870	0.6522	4.4348	8.8261	0.6957	8.1304
	COM	8.6197	0.9155	7.7042	11.5211	1.0423	10.4789
Median	USA	13.0000	1.0000	9.0000	14.0000	1.0000	13.0000
	GER	10.0000	0.0000	9.0000	12.0000	0.0000	12.0000
	CHI	5.0000	0.0000	4.0000	8.0000	0.0000	7.0000
	COM	8.0000	0.0000	8.0000	12.0000	0.0000	11.0000
Minimum	USA	2.0000	0.0000	2.0000	4.0000	0.0000	3.0000
	GER	2.0000	0.0000	2.0000	3.0000	0.0000	3.0000
	CHI	0.0000	0.0000	-1.0000	0.0000	0.0000	0.0000
	COM	0.0000	0.0000	-1.0000	0.0000	0.0000	0.0000
Maximum	USA	17.0000	8.0000	16.0000	19.0000	8.0000	18.0000
	GER	15.0000	2.0000	15.0000	16.0000	3.0000	15.0000
	CHI	14.0000	7.0000	14.0000	15.0000	7.0000	15.0000
	COM	17.0000	8.0000	16.0000	19.0000	8.0000	18.0000
Amplitude	USA	15.0000	8.0000	14.0000	15.0000	8.0000	15.0000
	GER	13.0000	2.0000	13.0000	13.0000	3.0000	12.0000
	CHI	14.0000	7.0000	15.0000	15.0000	7.0000	15.0000
	COM	17.0000	8.0000	17.0000	19.0000	8.0000	18.0000
Standard	USA	4.3022	2.1111	4.1448	3.4080	2.0764	3.3372
Deviation	GER	3.5905	0.5669	3.5572	3.2170	1.0367	3.1199
	CHI	3.2559	1.5211	3.2681	4.1875	1.5161	4.3068
	COM	4.6097	1.7095	4.3779	4.1651	1.7315	3.9995
Skewness	USA	-0.5582	2.0751	-0.1167	-1.3994	2.1027	-0.9953
	GER	-0.4358	1.7658	-0.2802	-1.0803	1.4655	-0.8178
	CHI	0.9045	3.5000	1.2324	0.0321	3.4467	0.2542
	COM	0.0600	2.8377	0.1956	-0.6745	2.5779	-0.5487
Kurtosis	USA	-0.9330	4.2897	-1.2968	2.5577	4.4646	1.224
	GER	-0.7324	2.5401	-0.6978	1,2188	0.7712	0.5601
	CHI	1.1767	13.4604	2.2448	-0.6574	13.2118	-0.9234
	COM	-1.1677	8.6741	-1.0588	-0.2562	7.3178	-0.5490
No of	USA	29.0000	29.0000	29.0000	29.0000	29.0000	29.0000
observations	GER	19.0000	19.0000	19.0000	19.0000	19.0000	19.0000
	CHI	23.0000	23.0000	23.0000	23.0000	23.0000	23.0000
	COM	71.0000	71.0000	71.0000	71.0000	71.0000	71.0000

This table provides the descriptive statistics for the dependent variable (return, measured as Abnormal Return, Buy-and-Hold Return, and Cumulative Abnormal Return), and independent variables ethical score (ES), positive score (PS), negative (NS), LOG Revenue, Profit Margin, and Debt-to-Equity for the period from 2010 to 2017.

Dependent Variables: The *Abnormal Return* is measured as the difference between the actual return of the adjusted share price and the risk-free rate for which the Fama-French 3-factor model was used. The *Buy-and-Hold Return* is designed to buy the stock at the beginning of the sample period, 01/01/2010) and selling at the end of it (31/12/2017), representing an eight-year hold. The *Cumulative Abnormal Return* is the cumulation of all annual cumulative abnormal returns (AR).

Independent Variables: The *Ethical Score* (ES) is the difference between the positive and the negative score. The *Positive Score* (PS) is the sum of all positive scores in the screening. The *Negative Score* (NS) is the sum of all negative scores in the screening. The *LOG Revenue* is the logarithmised revenue data of the 31/12 of each year (2010 to 2017) and is measured in the currency of the country. The *Profit Margin* is

calculated as net income divided by revenue for each year (2010 to 2017). The *Debt-to-Equity* is calculated by dividing a company's total liabilities by its shareholder equity.

Data was only missing for China for the revenue (within CS and IT industry) and has been exempt.

Outliers have been detected via a scatter plot. The data appears to come from a linear model with a given slope and variation. The outliners do not fit into the linear model and are therefore omitted from data to ensure a fitted model.

Outliers occurred one time for USA-Abnormal Return-Consumer Staples industry, and three times for Germany-Abnormal Return-Industrials and Germany-Cumulative Abnormal Return-Industrials. The outliers have been omitted.

Descriptive Statistics and the corresponding tables have been produced for each country, namely USA, Germany, and China, individually. A summarizing table that focuses on industry and country using the Ethical Score means has been produced as well and will be discussed in the following.

Table 55 - USA Descriptive Statistics *by Industry*

			Mean	Median	Standard Deviation	Min	Max	Skewness	Kurtosis	N° of observations
Dependent	AR	CD	0.766	1.4488	7.0571	-17.1759	31.5371	-0.1007	2.5694	136
Variable		CS	-0.5607	1.5017	5.8177	-18.2264	6.8926	-1.4412	1.6767	71
		EN	-1.4702	-0.1438	6.2192	-20.1081	7.3273	-1.457	1.603	64
		FI	-0.1929	0.8933	5.9749	-17.573	14.5266	-0.7893	0.4427	223
		HC	0.4972	1.1381	6.9414	-21.3604	14.7401	-0.5215	0.3248	207
		IN	0.1269	0.961	5.5181	-26.8976	11.1875	-1.378	3.1336	176
		IT	0.8014	1.2637	6.1384	-17.2095	23.0676	-0.0569	1.8113	151
		TC	-0.3928	0.7571	8.9414	-23.3056	18.8217	-0.5412	0.6497	56
		UT	-1.2481	-0.5149	7.1232	-21.3373	17.1225	-0.614	1.2636	56
		All	0.1615	1.0053	6.5545	-26.8976	31.5371	-0.5482	1.3624	1397
	BHAR	CD	0.2091	0.1698	0.2407	-0.3601	1.2304	1.1638	2.8588	136
		CS	0.151	0.1637	0.1582	-0.271	0.6167	0.2467	0.8892	72
		EN	0.0863	0.0882	0.1901	-0.3009	0.6151	0.2603	-0.09	64
		FI	0.1677	0.1631	0.2457	-0.5869	1.1109	0.3906	1.8356	223
		HC	0.2104	0.1633	0.3012	-0.5284	1.1525	0.8331	0.9675	207
		IN	0.1913	0.1793	0.2214	-0.4294	0.9565	0.3575	0.7828	176
		IT	0.2337	0.1829	0.3665	-0.5944	2.4952	2.9213	16.1454	152
		TC	0.1738	0.1177	0.3882	-0.5793	1.4337	1.2457	2.6244	56
		UT	0.1154	0.0951	0.2852	-0.6441	1.3094	1.2485	5.4967	56
		All	0.1849	0.1603	0.2774	-0.6441	2.4952	1.5806	8.9598	1142
	CAR	CD	0.0337	0.0753	0.3538	-0.876	1.6399	-0.1311	2.9678	136
		CS	0.0889	0.0825	1.0263	-0.9295	8.3681	7.3833	60.0528	72
		EN	-0.075	-0.0075	0.319	-1.0255	0.381	-1.4244	1.5155	64
		FI	-0.0078	0.0473	0.3061	-0.8962	0.7554	-0.752	0.4054	223
		HC	0.0268	0.0574	0.3573	-1.0894	0.7665	-0.4875	0.2825	208
		IN	0.0078	0.0504	0.284	-1.3718	0.5817	-1.3402	2.9902	176
		IT	0.0393	0.0598	0.3194	-0.8777	1.1995	-0.0287	1.7178	152
		TC	-0.0182	0.0397	0.4609	-1.1886	0.9787	-0.5092	0.6145	56
		UT	-0.0632	-0.0268	0.3664	-1.0882	0.8904	-0.5743	1.2312	56
		All	0.0113	0.0486	0.4159	-1.3718	8.3681	6.769	142.305	1142
Independent	Ethical	CD	11.6471	12.7143	3.4375	4	18	-0.3451	-1.0893	136
Variable	Score	CS	11.2778	12	4.0112	4	17	-0.1987	-1.4088	72
		EN	11.4375	11.5714	1.9766	8	15	-0.2886	-0.8125	64
		FI	9.861	11	4.5777	-3	16	-0.6719	-0.6212	223
		HC	10.3816	12	3.9379	1	16	-0.7061	-0.8228	207
		IN	10.0455	10.8571	3.3899	0	15	-0.7859	-0.0286	176
		IT	11.1258	12	4.1368	1	16	-0.7873	-0.2498	151
		TC	8.1429	10	4.3166	0	15	-0.8513	-0.5171	56
		UT	10.2143	10.5714	3.5807	0	15	-0.5986	0.2308	56
		All	10.3605	11.2857	4.0039	-3	18	-0.6436	-0.4133	1398
	Positive	CD	13.2353	14.1429	3.2815	4	18	-0.8612	-0.1681	136
	Score	CS	13.0556	13	3.6128	6	19	-0.3156	-1.0633	72
		EN	14.5625	15	1.5106	9	16	-1.9133	3.7778	64
		FI	10.7399	11.7143	4.2457	1	16	-0.4756	-1.0301	223
		HC	12.1739	14	4.2762	2	17	-0.8595	-0.5055	207
		IN	12.8409	13	2.2238	4	16	-0.8831	0.8404	176
		IT	11.4437	12.2857	4.0368	2	16	-0.8373	-0.2184	151
		TC	9.1429	11	4.3166	1	15	-0.6299	-1.0409	56
		UT	10.2143	10.5714	3.5807	0	15	-0.5986	0.2308	56
		All	10.3605	11.2857	4.0039	-3	18	-0.6436	-0.4133	1398

	Negative	CD	1.5882	1	2.084	0	8	1.7526	2.7728	136
	Score	CS	1.7778	1	2.4394	0	8	1.7185	2.0594	72
		EN	3.125	2.5	1.9645	1	7	0.7329	-0.5822	64
		FI	0.8789	1	0.9888	0	4	1.3745	1.8288	223
		HC	1.7923	2	1.0608	0	4	0.0257	-0.818	207
		IN	2.7955	2.6429	2.2289	0	9	0.9723	0.7343	176
		IT	0.3179	0	0.5547	0	2	1.702	2.0737	151
		TC	1	1	0.9258	0	2	0	-1.8929	56
		UT	10.2143	10.5714	3.5807	0	15	-0.5986	0.2308	56
		All	10.3605	11.2857	4.0039	-3	18	-0.6436	-0.4133	1398
	LOG	CD	1.5317	1.5798	0.5091	-0.9329	2.2501	-1.9957	6.6199	136
	Revenue	CS	1.8688	1.8827	0.4098	1.1818	2.6833	0.0846	-0.1791	72
		EN	1.6395	1.4495	0.5241	0.7853	2.687	0.6385	-0.8406	64
		FI	1.3538	1.3458	0.4829	0.0531	2.3893	-0.1411	-0.4493	223
		HC	1.1923	1.2615	0.5223	-0.2363	2.3013	-0.4607	-0.2374	207
		IN	1.4763	1.4851	0.2969	0.7846	2.1767	0.1993	-0.4647	176
		IT	1.2572	1.1749	0.5274	0.1173	2.3687	0.0711	-0.9648	151
		TC	1.3912	1.4666	0.5535	0.5899	2.2143	0.0113	-1.3479	56
		UT	1.1993	1.1906	0.1222	0.9542	1.5254	0.4781	0.6717	56
		All	1.3533	1.3755	0.5129	-0.9329	2.687	-0.3369	0.3166	1398
	Profit	CD	0.0813	0.0985	0.2165	-1.3222	0.5574	-4.3493	25.7155	136
	Margin	CS	0.073	0.0579	0.0484	0.0168	0.2356	0.8649	0.2041	72
		EN	0.0527	0.0912	0.1502	-0.6274	0.2828	-2.6222	8.8542	64
		FI	0.1826	0.1618	0.1313	-0.1228	1.1309	2.0913	11.5428	223
		HC	0.1258	0.1309	0.1767	-1.2708	1.0275	-2.2365	22.787	207
		IN	0.0954	0.0832	0.0716	-0.0522	0.5118	3.0113	15.4466	176
		IT	0.1693	0.1791	0.0934	-0.1314	0.616	-0.1572	3.9401	151
		TC	0.0361	0.0358	0.077	-0.1225	0.2388	0.4054	0.5038	56
		UT	0.1097	0.1076	0.0511	0.0217	0.3128	1.16	3.5479	56
		All	0.1302	0.1181	0.1433	-1.3222	1.1309	-1.6588	27.6685	1398
	Debt-to-	CD	2.0523	1.6916	3.4946	-15.1045	10.9241	-1.1146	6.9128	136
	Equity	CS	6.1794	1.5396	92.1241	-272.7273	712.3529	5.9227	49.6988	72
		EN	1.0987	0.9823	0.4327	0.596	2.304	1.1345	0.502	64
		FI	7.2984	6.8711	7.7437	0.3147	104.0845	8.9088	109.3637	223
		HC	1.0601	1.1273	1.5712	-8.318	5.8765	-2.7888	14.4387	207
		IN	11.4343	1.9918	77.6155	-77.3892	990.2564	11.6905	145.4725	176
		IT	1.3872	0.8043	1.6389	0.183	8.786	2.6667	7.457	151
		TC	-4.8543	2.3422	118.3848	-855.6522	167.1233	-6.7221	49.1298	56
		UT	2.7298	2.6561	0.3236	2.2475	3.5426	0.6778	-0.2792	56
		All	4.6402	1.6377	49.945	-855.6522	990.2564	9.3888	308.2616	1398

Table 55 presents the descriptive statistics in the USA by industry for the dependent variables, namely Abnormal Return, Buy-and-Hold Return, and Cumulative Abnormal Return as well as for the independent variables, namely the Score, differentiated in Ethical Score, Positive Score, and Negative Score, the logarithmised revenue [in bn $] (logRevenue), the Net Profit Margin (NetProfitMargin), and the Debt-to-Equity Ratio (Debt-to-Equity).

Table 56 - Germany Descriptive Statistics *by Industry*

			Mean	Median	Standard Deviation	Min	Max	Skewness	Kurtosis	N° of observations
Dependent	AR	CD	4.0349	3.9474	4.9758	-13.1222	19.6562	-0.0101	1.1144	136
Variable		CS	3.4125	3.6304	4.0814	-8.8155	15.6556	-0.4051	0.7719	120
		EN	0.9302	0.0997	8.3953	-14.9059	25.0055	0.8956	1.7389	24
		FI	3.4582	2.687	5.1146	-21.2728	22.1098	0.0786	4.7558	136
		HC	3.5194	3.6255	5.4121	-24.7144	16.7203	-1.051	6.0561	112
		IN	3.6985	3.1436	7.2232	-16.8405	69.6832	3.7068	33.561	205
		IT	5.2173	4.6079	6.2379	-16.6277	21.4877	-0.0793	0.8707	120
		TC	3.6356	3.9743	7.707	-18.2989	20.3042	-0.5371	0.5384	72
		UT	0.5053	1.0248	3.8067	-13.2462	7.8285	-1.1307	2.9974	48
		All	3.6129	3.4417	6.0159	-24.7144	69.6832	1.2186	16.1067	973
	BHAR	CD	0.218	0.1788	0.3265	-0.5493	1.4126	0.819	1.4732	135
		CS	0.1852	0.1802	0.2546	-0.3547	1.1577	0.5778	1.4086	120
		EN	0.0978	-0.0492	0.591	-0.5697	2.2893	2.3441	7.0889	24
		FI	0.1917	0.1249	0.3501	-0.7122	1.9692	1.7286	5.6365	136
		HC	0.2045	0.1488	0.3055	-0.4245	1.3955	0.98	1.7634	112
		IN	0.2047	0.1283	0.4306	-0.6427	3.1306	2.6862	14.9694	208
		IT	0.2784	0.2476	0.3873	-0.5574	1.3343	0.5056	0.3986	120
		TC	0.2036	0.2067	0.4319	-0.7928	1.2479	0.1405	-0.1235	72

		UT	0.0151	0.034	0.1943	-0.5364	0.4533	-0.2628	1.0689	48
		All	0.1997	0.149	0.3682	-0.7928	3.1306	1.6191	8.0073	976
	CAR	CD	20.957	20.7287	25.8973	-68.2353	102.2124	-0.0105	1.118	136
		CS	17.2286	18.9841	22.2826	-45.8407	81.409	-0.5108	0.6919	120
		EN	4.8963	0.5185	43.7691	-77.5107	130.0287	0.8983	1.7179	24
		FI	17.9348	13.917	26.7327	-110.6186	114.9711	0.0939	4.6376	136
		HC	18.0888	18.6801	28.4	-98.8578	96.1135	-0.3887	2.5084	112
		IN	15.9364	14.6569	29.5073	-87.5705	142.2004	0.0871	1.8802	204
		IT	27.0582	24.7611	33.4276	-86.4639	111.7361	-0.2855	1.2804	120
		TC	19.0785	20.6665	40.2832	-96.984	105.5817	-0.5514	0.5434	72
		UT	2.5814	5.329	19.9496	-70.2049	40.7081	-1.1685	3.1383	48
		All	17.9997	17.7613	29.7371	-110.6186	142.2004	-0.108	1.9089	972
Independent	Ethical	CD								
Variable	Score		10.0588	10	2.9543	2	15	-0.327	-0.4469	136
		CS	11.7333	12.4286	3.1161	4	17	-0.433	-0.844	120
		EN	12	13	2.2254	8	15	-0.6229	-1.201	24
		FI	7.8235	8.0714	2.4483	3	13	-0.2309	-1.0775	136
		HC	11.7143	13	3.1526	4	17	-0.5469	-0.0195	112
		IN	10.9615	11.2857	2.6089	4	16	-0.6309	-0.1152	208
		IT	8.0667	7.7857	4.4865	1	16	0.0911	-1.2823	120
		TC	7.1111	6	3.6909	3	15	0.7487	-0.8469	72
		UT	11.4167	11.7143	1.8336	7	14	-0.4249	-0.8511	48
		All	9.9877	10.2857	3.527	1	17	-0.3791	-0.637	976
	Positive	CD	10.5882	11	3.0539	2	16	-0.5232	-0.3759	136
	Score	CS	11.7667	12.5714	3.1286	4	17	-0.4492	-0.8503	120
		EN	13.3333	13.9286	1.0838	11	15	-0.7368	-0.4531	24
		FI	8.5294	8.8571	2.6877	3	16	0.0643	-0.3894	136
		HC	12.5714	13	3.2811	5	17	-0.4588	-0.5722	112
		IN	11.9615	12.5	2.6382	5	17	-0.5657	-0.6069	208
		IT	8.0667	7.7857	4.4865	1	16	0.0911	-1.2823	120
		TC	7.1111	6	3.6909	3	15	0.7487	-0.8469	72
		UT	12.3333	13.0714	1.996	9	15	-0.6272	-1.0067	48
		All	10.5533	11	3.6817	1	17	-0.4619	-0.6244	976
	Negative	CD	0.5294	0	0.813	0	3	1.3986	0.7921	136
	Score	CS	0.0333	0	0.1507	0	1	4.9575	24.9486	120
		EN	1.3333	1	1.2472	0	3	0.4077	-1.5682	24
		FI	0.7059	0	1.3084	0	5	2.2452	4.4506	136
		HC	0.8571	0.5	1.1249	0	4	1.5074	1.8065	112
		IN	1	1	1.4142	0	6	2.0546	4.2061	208
		IT	0	0	0	0	0	#DIV/0!	#DIV/0!	120
		TC	0	0	0	0	0	#DIV/0!	#DIV/0!	72
		UT	0.9167	0.5	0.9412	0	2	0.1276	-1.9664	48
		All	0.5656	0	1.076	0	6	2.5534	7.3878	976
	LOG	CD	0.9775	0.8732	0.8442	-1.1502	2.434	-0.2523	-0.2803	136
	Revenue	CS	0.1782	-0.1376	0.804	-0.9016	1.8763	0.6536	-0.9041	120
		EN	1.3114	1.159	0.9097	0.0815	2.5788	0.2166	-1.5617	24
		FI	0.1829	-0.0153	1.0923	-2.7747	2.1398	0.1701	-0.8701	136
		HC	0.1569	0.1517	1.3863	-3.301	2.0058	-0.7662	0.0275	112
		IN	0.6653	0.6941	0.7262	-1.0706	1.999	-0.1671	-0.4856	208
		IT	-0.3167	-0.2281	0.9009	-2.1938	1.4435	-0.1664	-0.4795	120
		TC	-0.2311	-0.3019	1.0446	-2.0419	1.9479	0.4567	-0.1387	72
		UT	0.9596	0.9114	0.7583	-0.1537	2.2389	0.1394	-1.4539	48
		All	0.3669	0.4131	1.0559	-3.301	2.5788	-0.33	0.0335	976
	Profit	CD	0.0834	0.0733	0.0772	-0.0713	0.7505	4.953	40.7574	136
	Margin	CS	0.104	0.039	0.2216	-0.1242	1.4031	3.9325	16.5901	120
		EN	0.0303	0.0219	0.0964	-0.1167	0.4361	3.0518	13.2709	24
		FI	0.2051	0.1113	0.3136	-0.8247	1.9594	2.3328	9.9814	136
		HC	0.0101	0.0616	0.2479	-1.214	0.8115	-2.4684	10.3152	112
		IN	0.0528	0.0528	0.1162	-0.6383	0.6633	-1.9975	17.2472	208
		IT	0.0712	0.0776	0.1485	-0.9213	0.4808	-3.2897	19.8712	120
		TC	0.0251	0.025	0.1835	-0.8792	0.5378	-1.4337	9.7016	72
		UT	0.034	0.0386	0.0762	-0.2214	0.2265	-1.0177	2.7257	48
		All	0.0784	0.0582	0.1989	-1.214	1.9594	1.5664	22.6725	976
	Debt-to-	CD	0.8343	0.605	0.827	0	4.08	1.1722	1.2844	136
	Equity	CS	0.7602	0.205	4.1865	0	46	10.6491	115.4421	120
		EN	0.6558	0.625	0.2932	0.01	1.25	0.3333	0.0552	24
		FI	1.5331	0.915	1.8238	0	10.84	2.0898	5.9953	136
		HC	0.6272	0.52	0.553	-0.04	2.6969	1.0358	1.0765	112
		IN	0.6126	0.445	0.7275	0	6.71	4.1453	26.6484	208
		IT	0.3489	0.25	0.636	-1.3	3.62	1.4256	6.0341	120
		TC	0.6335	0.41	0.7249	-0.22	2.89	1.1606	0.4941	72
		UT	0.8876	1.095	2.3712	-13.49	6.02	-4.4765	28.777	48
		All	0.7753	0.4338	1.8282	-13.49	46	15.6142	388.5979	976

Table 56 presents the descriptive statistics in Germany by industry for the dependent variables, namely Abnormal Return, Buy-and-Hold Return, and Cumulative Abnormal Return as well as for the independent variables, namely the Score, differentiated in Ethical Score, Positive Score, and Negative Score, the logarithmised revenue [in bn $] (logRevenue), the Net Profit Margin (NetProfitMargin), and the Debt-to-Equity Ratio (Debt-to-Equity).

Table 57 - China Descriptive Statistics *by Industry*

			Mean	Median	Standard Deviation	Min	Max	Skewness	Kurtosis	N° of observations
Dependent Variable	AR	CD	5.0491	4.4415	7.7252	-12.5425	27.7116	0.3585	0.1266	136
		CS	-0.0134	-0.0581	6.9723	-21.8944	22.245	-0.0082	1.1095	120
		EN	0.898	1.0296	5.7397	-13.054	15.4685	-0.1963	0.2767	24
		FI	2.6966	1.7056	8.0486	-16.7227	75.8099	3.8739	33.3441	136
		HC	2.9721	2.5409	15.6662	-17.9276	86.7619	3.7731	20.3875	112
		IN	3.6404	2.9438	6.6362	-11.5527	24.4365	0.3701	0.4417	205
		IT	6.8844	6.2096	9.7411	-14.3432	53.4381	1.3215	4.8013	120
		TC	1.8968	1.931	4.8433	-8.1189	18.9001	0.9837	2.5733	72
		UT	2.8144	2.0293	5.2041	-6.7718	19.4574	0.8185	0.8009	48
		All	3.2706	2.3696	8.1847	-21.8944	86.7619	2.4321	20.1224	973
	BHAR	CD	0.2832	0.1359	0.539	-0.5914	2.7008	1.257	2.4589	135
		CS	0.121	0.0427	0.4043	-0.4594	2.64	2.8427	14.7999	120
		EN	0.0332	0.0102	0.291	-0.5054	1.156	1.0146	2.7937	24
		FI	0.1324	0.0541	0.4212	-0.5805	3.3307	3.0716	17.5654	136
		HC	0.3684	0.0828	1.4024	-0.5894	8.6981	5.4372	32.1873	112
		IN	0.187	0.1111	0.4339	-0.5602	2.21	1.6088	4.4124	208
		IT	0.586	0.2566	2.7897	-0.5833	28.3415	9.6068	95.8289	120
		TC	0.0615	0.0021	0.2607	-0.3549	1.1719	2.0632	7.1264	72
		UT	0.1389	0.0589	0.3335	-0.3449	1.3825	1.4789	2.4601	48
		All	0.2168	0.0766	1.0791	-0.5914	28.3415	20.4551	519.4017	976
	CAR	CD	0.262	0.2354	0.4008	-0.6522	1.441	0.3537	0.1138	136
		CS	0.1306	0.087	0.3197	-0.475	1.4391	1.1526	2.6344	120
		EN	0.0455	0.0529	0.2997	-0.6919	0.8044	-0.2177	0.3129	24
		FI	0.1391	0.0883	0.4167	-0.8696	3.9421	3.936	33.9927	136
		HC	0.2803	0.184	0.7637	-0.8186	4.5116	4.3094	23.8021	112
		IN	0.1883	0.1534	0.3447	-0.6007	1.2707	0.3723	0.4621	204
		IT	0.3524	0.3198	0.4965	-0.7458	2.7788	1.3135	5.156	120
		TC	0.0989	0.1004	0.2536	-0.4222	1.0017	1.033	2.7811	72
		UT	0.1451	0.1066	0.2695	-0.3589	1.0118	0.8083	0.8238	48
		All	0.1884	0.1383	0.4121	-0.8696	4.5116	2.7269	22.3761	972
Independent Variable	Ethical Score	CD	6.5938	6.1429	3.8707	-1	15	0.4274	-0.3535	136
		CS	8.9167	9.2857	3.5261	1	16	-0.6069	0.135	120
		EN	9.2143	10	4.4361	0	17	-0.8864	0.391	24
		FI	6.96	6.7857	3.7764	-1	16	-0.0072	-0.7833	136
		HC	5.3	4.3571	4.086	0	13	0.1624	-1.474	112
		IN	9.0152	10.0714	4.1418	0	16	-0.8743	-0.0813	208
		IT	8.1154	7.7143	3.6136	1	15	0.1374	-0.7052	120
		TC	8.6	10.1429	4.9725	-1	15	-0.952	-0.2986	72
		UT	8.5556	7.9286	3.1961	1	15	0.0872	-0.4323	48
		All	7.8866	8	4.0472	-1	17	-0.27	-0.682	976
	Positive Score	CD	7.3125	6.9286	3.762	0	15	0.1284	-0.3515	136
		CS	9.5833	9.9286	3.4424	3	16	-0.3112	-0.6848	120
		EN	11.1429	12.1429	4.9281	0	18	-1.4483	1.1932	24
		FI	7.58	7.0714	3.849	0	16	-0.016	-0.8219	136
		HC	6.3	5.3571	4.086	1	14	0.1624	-1.474	112
		IN	9.5339	10.8571	4.236	0	16	-0.9942	0.1042	208
		IT	8.4231	7.8571	3.7581	1	16	0.1451	-0.6883	120
		TC	9	10.5	4.7208	0	15	-0.8849	-0.4603	72
		UT	9.7778	9.6429	3.3211	2	16	0.0146	-0.2517	48
		All	8.6087	9	4.1325	0	18	-0.3197	-0.6813	976
	Negative Score	CD	0.7188	0	1.6788	0	7	3.2633	9.692	136
		CS	0.6667	0.5	0.7454	0	2	0.6361	-0.9467	120
		EN	1.8909	2	1.2519	0	4	0.1388	-1.0128	24
		FI	0.88	1	1.5501	0	13	5.4797	34.574	136
		HC	1	1	0	1	1	#DIV/0!	#DIV/0!	112
		IN	0.5188	0	0.5852	0	2	0.682	-0.4227	208
		IT	0.3077	0	0.4615	0	1	0.8456	-1.3106	120

	TC	0.4	0	0.4899	0	1	0.4243	-1.9186	72
	UT	1.2222	1	0.9162	0	3	0.4226	-0.5607	48
	All	0.7801	1	1.1885	0	13	4.3544	29.3548	976
LOG	CD	0.8383	0.8514	0.7542	-0.4131	2.9335	0.8373	0.5275	136
Revenue	CS	0.94	0.7599	0.6353	-0.3565	2.4627	0.709	-0.2098	120
	EN	1.558	1.4982	0.7228	0.3404	2.676	0.0221	-1.0527	24
	FI	1.859	1.8692	0.633	-0.0097	3.614	-0.4226	0.1034	136
	HC	0.4243	0.1292	1.1695	-1.7959	2.5618	0.3455	-0.6482	112
	IN	1.5138	1.7109	0.8538	-0.9626	2.8388	-0.7736	0.4377	208
	IT	0.9152	0.8704	0.9146	-2.5229	2.5553	-0.4238	0.855	120
	TC	1.6034	1.7091	0.8271	-0.2677	2.7575	-0.8012	-0.1443	72
	UT	1.3692	1.3493	0.3635	0.4239	2.0206	-0.1292	-0.4069	48
	All	1.3068	1.3857	0.8722	-2.5229	3.614	-0.3711	0.0016	976
Profit	CD	0.1675	0.1143	0.2069	-0.0744	1.4929	3.2632	14.7032	136
Margin	CS	0.2404	0.1371	0.3521	-0.1473	2.2307	2.9376	10.9725	120
	EN	0.0886	0.0815	0.1419	-0.7561	0.2913	-3.6282	21.741	24
	FI	0.2631	0.3199	0.1559	0.0096	0.5472	-0.2673	-1.4221	136
	HC	-0.1427	0.1011	0.8617	-3.4559	1.0866	-2.7651	7.5142	112
	IN	0.1754	0.0938	0.2276	-0.3798	1.31	2.0443	5.5321	208
	IT	0.1336	0.1294	0.3626	-3	0.6179	-6.355	53.6926	120
	TC	0.0687	0.0445	0.0688	-0.0943	0.2466	1.0032	1.2367	72
	UT	0.1494	0.1068	0.1185	0.0088	0.5539	1.9161	3.2018	48
	All	0.1692	0.1246	0.3047	-3.4559	2.2307	-4.2235	54.9195	976
Debt-to-	CD	0.7591	0.245	2.8662	0	32	10.2644	111.6578	136
Equity	CS	0.8844	0.65	0.9477	0.03	5.11	2.5859	7.9061	120
	EN	0.4864	0.39	0.2496	0.15	1.17	1.2076	0.6009	24
	FI	1.4828	0.505	4.0387	0	43	6.795	58.6249	136
	HC	0.2735	0.105	0.3562	0	1.15	1.4537	0.6961	112
	IN	0.955	0.72	0.7732	0	3.67	1.0837	0.8283	208
	IT	0.3647	0.235	0.3666	0	1.91	1.822	4.0121	120
	TC	0.53	0.34	0.6239	0	1.99	1.2392	0.2308	72
	UT	1.3397	1.295	0.7266	0.1	3.28	0.4532	0.2578	48
	All	0.921	0.46	2.2944	0	43	11.5449	172.7653	976

Table 57 presents the descriptive statistics in China by industry for the dependent variables, namely Abnormal Return, Buy-and-Hold Return, and Cumulative Abnormal Return as well as for the independent variables, namely the Score, differentiated in Ethical Score, Positive Score, and Negative Score, the logarithmised revenue [in bn $] (logRevenue), the Net Profit Margin (NetProfitMargin), and the Debt-to-Equity Ratio (Debt-to-Equity).

Table 58 - Score Analysis for Consumer Discretionary

CD	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	8.6197	0.9155	7.7042	11.5211	1.0423	10.4789
Median	8.0000	0.0000	8.0000	12.0000	0.0000	11.0000
Minimum	0.0000	0.0000	-1.0000	0.0000	0.0000	0.0000
Maximum	17.0000	8.0000	16.0000	19.0000	8.0000	18.0000
Amplitude	17.0000	8.0000	17.0000	19.0000	8.0000	18.0000
Standard Deviation	4.6097	1.7095	4.3779	4.1651	1.7315	3.9995
Skewness	0.0600	2.8377	0.1956	-0.6745	2.5779	-0.5487
Kurtosis	-1.1677	8.6741	-1.0588	-0.2562	7.3178	-0.5490
No of Observation	71	71	71	71	71	71

Table 58 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 for the consumer discretionary industry. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Table 59 - Score Analysis for Consumer Staples

CS	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	9.7778	0.8519	8.9259	12.9259	0.8704	12.0556
Median	10.0000	0.0000	8.5000	13.5000	0.0000	13.0000
Minimum	3.0000	0.0000	1.0000	3.0000	0.0000	1.0000
Maximum	18.0000	8.0000	17.0000	19.0000	8.0000	16.0000
Amplitude	15.0000	8.0000	16.0000	16.0000	8.0000	16.0000
Standard Deviation	3.9331	1.4581	3.7950	3.5686	1.4536	3.6989
Skewness	0.0524	2.8096	0.1697	-1.0091	2.8008	-0.9239
Kurtosis	-0.9436	10.3292	-0.6860	0.7411	10.3448	0.5918
No of Observation	54	54	54	54	54	54

Table 59 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 for the consumer staples industry. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Table 60 - Score Analysis for Energy

EN	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	12.2083	2.5000	9.7083	13.7083	2.5417	11.1667
Median	13.0000	2.0000	10.5000	15.0000	2.0000	12.0000
Minimum	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	16.0000	7.0000	14.0000	18.0000	7.0000	17.0000
Amplitude	16.0000	7.0000	14.0000	18.0000	7.0000	17.0000
Standard Deviation	3.6626	1.8708	3.4336	3.4938	1.8704	3.5668
Skewness	-1.9819	1.0397	-1.1462	-2.6753	0.9708	-1.2344
Kurtosis	4.5386	0.7495	1.3208	9.2522	0.6492	2.5020
No of Observation	24	24	24	24	24	24

Table 59 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 for the energy industry. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Table 61 - Score Analysis for Finance

FI	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	7.2658	0.6709	6.5949	10.8861	0.7595	10.1266
Median	7.0000	1.0000	6.0000	12.0000	1.0000	11.0000
Minimum	0.0000	0.0000	-3.0000	0.0000	0.0000	0.0000
Maximum	16.0000	5.0000	15.0000	16.0000	5.0000	16.0000
Amplitude	16.0000	5.0000	18.0000	16.0000	5.0000	16.0000
Standard Deviation	3.8144	0.8961	3.8796	4.0907	0.9575	4.0919
Skewness	0.5225	2.3213	0.3028	-0.5782	2.0044	-0.5798
Kurtosis	-0.0381	7.8532	-0.0320	-0.6455	5.4038	-0.5684
No of Observation	79	79	79	79	79	79

Table 59 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 for the finance industry. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Table 62 - Score Analysis for HealthCare

HC	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	10.0784	1.3529	8.7255	12.4510	1.3725	11.0784
Median	11.0000	1.0000	10.0000	14.0000	1.0000	12.0000
Minimum	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000
Maximum	17.0000	4.0000	17.0000	17.0000	4.0000	17.0000
Amplitude	16.0000	4.0000	17.0000	16.0000	4.0000	17.0000
Standard Deviation	4.6730	1.0632	4.4943	4.4206	1.0839	4.1673
Skewness	-0.3303	0.6511	-0.3549	-0.9652	0.6250	-0.9199
Kurtosis	-1.0222	-0.1103	-1.0886	-0.1519	-0.2775	-0.0458
No of Observation	51	51	51	51	51	51

Table 62 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 for the healthcare industry. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Table 63 - Score Analysis for Industrials

IN	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	10.3974	1.2949	9.1026	12.8205	1.3205	11.5000
Median	11.0000	1.0000	9.5000	14.0000	1.0000	12.5000
Minimum	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	17.0000	9.0000	16.0000	17.0000	9.0000	16.0000
Amplitude	17.0000	9.0000	16.0000	17.0000	9.0000	16.0000
Standard Deviation	3.5386	1.7254	3.6147	3.2650	1.7577	3.4816
Skewness	-0.6510	2.0654	-0.6293	-1.9216	1.9950	-1.2815
Kurtosis	0.4811	5.1411	0.1158	4.7118	4.6327	1.6454
No of Observation	78	78	78	78	78	78

Table 63 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 for the industrials industry. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Table 64 - Score Analysis for Information Technology

IT	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	7.7692	0.1731	7.5962	10.7500	0.2115	10.5385
Median	7.0000	0.0000	7.0000	12.0000	0.0000	11.5000
Minimum	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
Maximum	16.0000	2.0000	16.0000	16.0000	2.0000	16.0000
Amplitude	16.0000	2.0000	16.0000	15.0000	2.0000	16.0000
Standard Deviation	4.4446	0.4261	4.4431	4.5356	0.4530	4.4784
Skewness	0.2567	2.5157	0.3040	-0.5723	2.0735	-0.5947
Kurtosis	-1.0704	6.1148	-1.0396	-0.8698	3.7617	-0.7983
No of Observation	52	52	52	52	52	52

Table 64 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 for the information technology industry. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Table 65 - Score Analysis for Telecommunication

TC	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	6.9565	0.3913	6.5652	9.6957	0.3913	9.3043
Median	6.0000	0.0000	6.0000	11.0000	0.0000	10.0000
Minimum	0.0000	0.0000	-1.0000	1.0000	0.0000	0.0000
Maximum	14.0000	2.0000	13.0000	15.0000	2.0000	15.0000
Amplitude	14.0000	2.0000	14.0000	14.0000	2.0000	15.0000
Standard Deviation	4.2373	0.7064	4.1371	4.3081	0.7064	4.4275
Skewness	0.1095	1.6047	-0.0899	-0.5910	1.6047	-0.6972
Kurtosis	-1.4111	1.1301	-1.1888	-0.9093	1.1301	-0.3820
No of Observation	23	23	23	23	23	23

Table 65 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 for the telecommunication industry. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

Table 66 - Score Analysis for Utilities

UT	2010			2017		
	PS	NS	ES	PS	NS	ES
Mean	9.9600	1.5200	8.4400	13.2000	1.4800	11.7200
Median	10.0000	1.0000	9.0000	14.0000	1.0000	12.0000
Minimum	2.0000	0.0000	0.0000	7.0000	0.0000	6.0000
Maximum	17.0000	4.0000	15.0000	17.0000	4.0000	15.0000
Amplitude	15.0000	4.0000	15.0000	10.0000	4.0000	9.0000
Standard Deviation	3.7038	1.2687	3.6669	2.5298	1.2687	2.5694
Skewness	-0.3084	0.3903	-0.3964	-0.9977	0.4858	-0.6475
Kurtosis	-0.0262	-0.8833	0.0589	0.2484	-0.8194	-0.3947
No of Observation	25	25	25	25	25	25

Table 66 presents the descriptive statistics for the Positive Score, Negative Score, and Ethical Score for the years 2010 and 2017 for the utilities industry. The mean, median, minimum, maximum, amplitude, standard deviation, skewness, and kurtosis have been calculated.

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