ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

International Bachelor in Economics and Business Economics (IBEB)
Bachelor Thesis

'Who invests in sin stocks?'

Recent years have seen a sudden surge in research regarding environmental, social, and governance issues in financial markets. With the increasing access and speed of information, companies involved with questionable activities face higher reputation risks than ever before. This paper focuses on determining the investor profile of institutional owners of so-called 'sin' companies. The research aims to find differences between institutional ownership structure of sin and non-sin stocks using cross-sectional data from three databases. The study leads to surprising findings, showing that investment managers tend to invest less in sin stocks, a finding contrary to what could be expected. A shocking finding suggests that hedge funds also hold less sin stocks, compared to non-sin stocks. The study concludes that significant differences can be seen with respect to investor type and location between sin and non-sin stocks. Further research is recommended to examine differences in investor characteristics across years.

Name student: *Malgorzata Janowska*
Student ID number: *426524*

Supervisor: *Dr. Laurens Swinkels*
Second assessor: *Dr. Jorn Zenhorst*

Date final version: *2.08.2018*

Table of Contents

1. Introduction

Even though the idea of Socially Responsible Investment (SRI) with religion as its core origin can be traced back to the 18th century (Drake, 1950), it is in the late 20th century that the modern version of SRI began. Shortly after the rise of global concerns about the climate change and Socially Responsible Investing, Robert Levering and Milton Moskowitz (1998) published a list of companies with high results from the Trust Index Employee Survey, highlighting not only the environmental and social, but also corporate governance policies that companies should take into consideration, called the *Fortune 100 Best Companies to Work for in America*. Along with the development of Environmental, Social and Corporate Governance (ESG) policies, a new trend of research appeared, examining the relationship between companies' SRI ratings and financial performance. Widely present assumption that investing in "green" companies would render lower returns was challenged by a plethora of studies. In their meta-study, Friede, Busch, and Bassen (2015) note that roughly 90% of studies they consider find a non-negative, while a vast majority finds a positive relationship between Corporate Social Responsibility (CSR) ratings and returns.

The development of the United Nations Principles for Responsible Investment (UN PRI) in April 2006 helped further promote and expand the concept of CSR. Over 1,700 signatories of PRI have committed to the Six Principles, thus pledging "to incorporate ESG issues into their investment analysis, decision-making processes, and ownership policies and practices; to seek appropriate disclosure on ESG issues by the entities in which they invest; to promote acceptance and implementation of the Principles; and to work together to enhance their effectiveness and report on their progress towards implementing the Principles" (About the PRI, 2017). The enactment of the UN Principles led many institutional investors to discontinue purchasing so-called 'sin stocks' - stocks of companies associated with controversial behavior or involved in the production of controversial goods, such as tobacco, alcohol, weapons, and thermal coal mining. Moreover, several government bonds of countries subject to UN, EU, or US sanctions have been excluded from the institutional investment portfolios.

With the abundance of studies examining the link between financial performance and social ratings, this research will focus instead on the characteristics of institutions that choose to

invest in sin stocks, adding theoretical relevance to the area studied. Moreover, the paper is relevant in practice, as the outcome of the study can give both policymakers as well as institutional and private investors valuable insight into institutions more and less inclined to hold stocks of controversial companies. Therefore, the research question is as follows:

"What is the investor profile of owners of 'sin' companies' stocks?"

Investor profiles will be examined in three parts – investor type, investor style, and investor location. Therefore, three hypotheses will arise in order to answer the research question.

The remainder of the paper is structured as follows: Section 2 provides the theoretical and conceptual framework of the research and previous academic literature on the topic. Section 3 presents and examines the data used and introduces the methodology of the research. Section 4 follows with a profound analysis of the results. Section 5 concludes the findings and gives recommendations for further research.

2. Theoretical Framework

2.1 Corporate Social Responsibility Literature Review

The idea of Socially Responsible Investing dates back to the 18th century when religious beliefs morally prohibited their followers from supporting sinful actions in any way. The first documented case was in the 1750s, when the Religious Society of Friends, also known as "Quakers", ironically one of the largest group of slave traders, prohibited any participation in the slave trade (Drake, 1950). Almost two centuries later, John Wesley (1912), a theologian and one of the founders of Methodism, gave a baseline for social investing in one of his sermons. Using very extreme words, Wesley instructed his supporters to avoid investing in companies and industries that impair the well-being of their workers. He was also the first to call such institutions "sinful" if they were associated with liquor, tobacco, or guns to any degree.

A more modern version of Socially Responsible Investment, one that did not stem from any religion, but rather from ethical and moral values, arose in the second half of the 20th century

and has since evolved to what is known nowadays as Environmental, Social, and Corporate Governance (ESG) policies, comprising of three elements that determine ethical impact of global institutions. Not yet called ESG, ethical policies had their beginning in the 1970s when several US investors excluded South African stocks from their portfolio as a symbolical protest against the country's apartheid regime. This action took place after Reverend Leon Sullivan wrote down a Code of Conduct in 1977, that swiftly became widely known as Sullivan Principles and became a benchmark for assessing Socially Responsible Behavior (Patten, 1990). The most prominent opponent of ethical investment, Milton Friedman provided three strong arguments that pro-social behavior of institutions is more costly than it is beneficial, in the book he co-wrote with his wife. His first argument asserted that institutional managers' aim is to increase the company's profits, as opposed to investing ethically. Secondly, the authors insist that managers that take investment decisions based on their own moral standards violate the liberty of shareholders, whose money should be spent according to the fiduciary duty. The third argument states that socially responsible investments might not prove effective on a large scale while reducing potential returns (Friedman and Friedman, 1990).

Association between social, environmental and governance issues was described by John Elkington (1997), who defined 'People, Planet, Profit' as the so-called Triple Bottom Line, consisting of actions managers must take in social, environmental, and financial realms. 'People' considered issues such as education, health, safety, or housing. 'Planet' part of the Triple Bottom Line reflected on waste, air and water quality, gas emissions and energy. The last part pointed out the importance of innovation, risk management, shareholder returns, and efficiency. A visual overview of how three areas can be portrayed as unity can be seen in Figure 1 below:

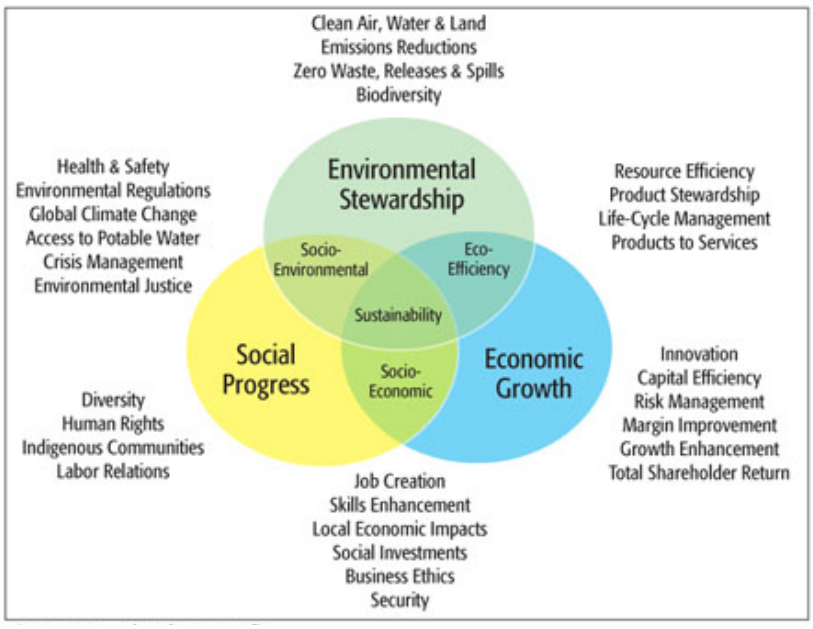

Figure 1: 'People, Planet, Profit' (Source: https://www.foodsafetymagazine.com/magazine-archive1/augustseptember-2012/planet-versus-profit/)

Elkington formulated seven revolutions that must happen for markets to converge to sustainability: markets must change "from compliance to competition", where an increasing number of market rivals will lead companies to develop sustainable competitive advantages over other market participants; values – "from hard to soft", where companies will take into account how their actions affect all stakeholders and focus on quantity over quality; transparency – "from closed to open", whereby businesses will become more transparent and all actions will be visible and easily verified due to growing access to information; life-cycle technology – "from product to function", where companies will shift their focus from the product to the long-term effects and sustainability of the production process; partnerships – "from subversion to symbiosis", where Elkington believes governments will have to cooperate with industries and NGOs; time - "from wider to longer", meaning that while firms need to act and adapt as quickly as possible, they need to take into consideration the long-term perspectives; and finally corporate governance – "from exclusive to inclusive", where businesses will have to include stakeholder analysis and business ecosystem in their decision-making process (Elkington, 1997).

Based on the three areas outlined by Elkington, Robert Levering and Milton Moskowitz (1998) published a list of *Fortune 100 Best Companies to Work For*, evaluating US companies based

on social and environmental scores, which became popular due to growing concerns about the ongoing climate change, as well as corporate governance, including criteria such as stockholder relationships and employee treatment. Authors argued that improving corporate governance leads to higher productivity and efficiency. Supporting Levering and Moskowitz, Edmans (2011) showed that companies listed in the *Fortune 100* performed better than otherwise similar companies by over 2% a year, based on the 1984-2009 sample.

Levering and Moskowitz contributed strongly to the integration of three pillars of ESG and to what they mean nowadays. United Nations name following company characteristics that constitute sustainability factors: Environmental – climate change, gas emissions, resource depletion, Social – employee relations and diversity, working conditions, health and safety, and Governance – corruption, tax strategy, board diversity and structure, political lobbying and donations (About the PRI, 2017).

In 2004, Caroline Waxler published a non-academic book later named a "guide to investing in vice industries", *Stocking Up on Sin: How to Crush the Market with Vice-Based Investing.* She showed that stocks of controversial companies outperformed S&P 500 index substantially, a surprising finding for an economy in recession. In the same year, Dan Ahrens, a then portfolio manager of the Vice Fund, a mutual fund focusing its investments on socially irresponsible stocks, published a book called *Investing in Vice: The Recession-Proof Portfolio of Booze, Bets, Bombs & Butts* (2004). He posited that regardless of the state of the economy, demand for alcohol, tobacco, or weaponry remains stable over time. Based on this argument, Ahrens' book further promoted sin investing.

Curious to find optimal portfolio in either sin or non-sin stocks, Michael Barnett and Robert Salomon (2006) find a curvilinear relationship between the financial performance and the SRI screening intensity of 61 mutual funds between the years 1972 and 2000, meaning that increasing intensity lowers financial returns only up to a certain point, after which higher screening intensity coincides with higher performance of the fund. A visual representation of their finding can be seen in Figure 2 below:

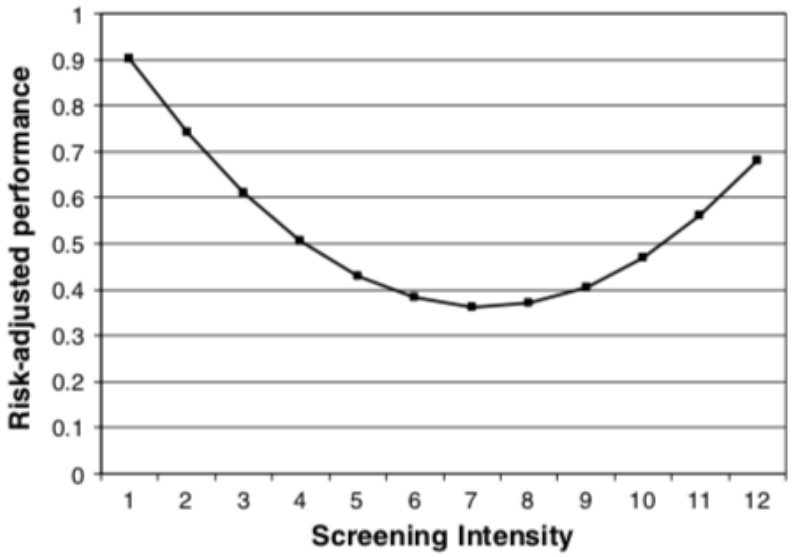

Figure 2: Curvilinear relationship between performance and screening intensity (Barnett & Salomon, 2006)

The last decade has seen a rise in academic research relating financial performance to degrees of environmental, social, and corporate governance controversies, with each research leading to different conclusions. One of perhaps the most renowned research was published by Hong and Kacperczyk (2009). Defining sin stocks as those involved with alcohol, tobacco, and gaming, authors composed the article in four parts. The first hypothesis stated that controversial stocks are expected to be held by less norm-constrained institutions. In relation to that, the second part of their research showed that, based on the sample from 1976 to 2006, sin stocks received less analyst coverage than otherwise the same, non-controversial stocks. Consistent with the fact that socially irresponsible stocks tend to be neglected and investors shun from the litigation and reputation risk, the sample of 1965 - 2006 suggested higher returns for stocks in vice industries than otherwise comparable stocks. Looking at banks, insurance companies, mutual and pension funds, and more, Hong and Kacperczyk (2009) showed that sin stocks had less institutional ownership, based on the sample from 1980 to 2006. The findings were robust to location, with similar findings in eight other global markets – Canada, France, Germany, Italy, The Netherlands, Spain, Switzerland, and the United Kingdom between 1985 and 2006. It is interesting to add a reference used in the 2009 paper, to an article in a Canadian magazine that has since been deleted from the magazine website and is therefore not accessible. Authors cite David Berman (2002), whose words can be interpreted to suggest that sin stocks tend to be undervalued on the market. It is

interesting for this research since it should show a positive relationship between sin stocks and value-style investors.

Sin stocks continue to be a subject of debate. David Blitz and Frank Fabozzi (2017) “revisited” the subject. Authors provided several extensive definitions of sin stocks, in their research using alcohol, tobacco, gambling, and conflict involvement as proxies for controversy. Consistent with the “doing good but not well” hypothesis of Statman and Glushkov (2009), who find relatively low returns of socially responsible stocks, Blitz and Fabozzi found a positive CAPM alpha, meaning higher expected returns, for sin stocks in all global datasets. Interestingly, authors apply the most recent 5-Factor model of Fama and French (2015), accounting for size, value, momentum, profitability, and investment and find robust evidence that this model explains abnormally high returns of sin stocks fully. They, therefore, refute the theory of risk premium for sin stocks.

It must be noted that in order to reach economically and statistically significant results that can prove or disprove theories of relationship between financial performance and ESG ratings, hundreds of years of data should be examined. Seeing as the research regarding sin stocks rose in past few decades, it can be suggested that each new research leads to different results and conclusions subject to different time spans and location of the sample used. Consequently, strong or final statements regarding returns of sin as opposed to non-sin stocks cannot yet be made.

Socially Responsible Investment is commonly exercised in four main methods. The first is called negative screening, whereby sin stocks are excluded from consideration altogether when taking investment decisions. Secondly, both institutions, as well as individuals, decide to remove controversial stocks from their current portfolios, a process called divestment. Third, investors can act socially responsibly through shareholder activism, by means of which they influence corporate behaviour in a positive, ethical way. The last practice of Socially Responsible Investing is the active investment, also called impact investment, where shareholders target only specific companies with high CSR or ESG ratings. Lewis Grant (2016), a portfolio manager at Hermes Global Equities, addressed Socially Responsible Investment strategies in the company commentary article. Grant discussed the rise of active ownership

and criticized negative screening method as a passive investment, where "investors 'wash their hands' of problems rather than attempt to solve them" (Grant, 2016, p. 2). Given his role, he also stressed the difficulty and importance of providing investors with the required financial performance, while fulfilling their ethical responsibilities. Indeed, numerous asset management institutions published exclusion lists, refusing investment in stocks involved in widely defined 'sin', including tobacco, alcohol, military production, adult entertainment industry, thermal coal mining or human rights violation, and bonds of governments that are involved in above-mentioned controversies or subject to national, EU or UN sanctions (ABN AMRO, 2017; Aegon, 2018; Nordea Bank, 2017; Norges Bank, 2016, 2017; Robeco, 2018).

It is important to address a discord between fiduciary duty, suggesting that maximizing profits is the sole goal of financial institutions, and ethical issues raised increasingly over the recent years. A paper published jointly by several UN institutions in 2015, *Fiduciary Duty in the 21st Century* concluded that "failing to consider long-term investment value drivers, which include environmental, social and governance issues, in investment practice is a failure of fiduciary duty" (Sullivan, Martindale, Feller & Bordon, 2015, p. 9). In the 2016 inquiry of the United Nations Environment Programme (UNEP), titled *Sustainable Finance? A Critical Analysis of the Regulation, Policies, Strategies, Implementation and Reporting on Sustainability in International Finance,* Thomas Clarke and Martijn Boersma examine 29 global banks and their relationship with Corporate Social Responsibility measures and reporting standards. They point out the most recent financial crisis as a "turning point" for sustainable finance. Seeing as banks act as financial intermediaries and essentially finance most activities in the market, they have an incomparable impact and a high responsibility for what investments are undertaken. Clarke and Boersma name several initiatives and principles that promote socially responsible behaviour in the market. Out of 29 banks in their sample, 16 are members of the United Nations Global Compact (UNGC) forum that regulates institutions' operations using ten principles. 18 banks participate in the United Nations Environment Programme Finance Initiative (UNEP FI), which also promotes sustainable business development. Moreover, authors point out that 19 of the banks in the sample are signatories of Equator Principles (EPs) that also determine operations based on ten principles. While authors consider several ethical initiatives, they conclude that socially responsible behaviour is not truly enforceable, and firms are not held accountable for their actions. They also argue that many institutions refer

to sustainable finance and even invest in ethical stocks, but their own activities are far from what they promise to shareholders. In authors' words, "it seems that responsible products and investments are used to offset unsustainable activities" (Clarke & Boersma, 2016, p. 20). The idea Clarke and Boersma bring forward is that the fiduciary duty of financial institutions must be re-evaluated.

2.2 Conceptual Framework

Three hypotheses are formulated based on recent research in academia regarding Corporate Social Responsibility and share ownership. Phansatan *et al.* (2011) examine the trading behaviour of investors categorised into four groups – individual, institutional, foreign investors and proprietary traders. Based on the sample from the Stock Exchange of Thailand, they find significant differences in trading behaviour and performance between investor types. DeCleyn and Braet (2012) formulate eight hypotheses to find a relationship between corporate structure and innovativeness of small and medium enterprises. The hypothesis relating to this research is the forth, aiming to find an influence of investor type on the innovativeness of the company. With the distinction between family, institutional investment company, venture capitalist, and other, authors find no significant influence in their Belgian sample. Finally, Iqbal *et al*. (2013) divide investors into individual, institutional, local, and foreign, and find that institutional and foreign investors outperform individual and local investors. Authors suggest that this finding may be due to asymmetry in information and investor sophistication. They also imply that the behaviour of investors forms anomalies in the financial market. Literature shows the importance of assessing differences in investor type when talking about financial performance. That is why, with the focus on institutional investors and the distinction of those into three sub-categories, the first hypothesis of this paper is as follows:

H1: There is a significant difference in the type of institutional investors between sin and non-sin stocks.

Barberis and Shleifer (2003) are the first authors to show the importance of what they call "style investing". Authors classify assets into classes and study stock prices and returns of

stocks divided into specific asset styles. They indicate that such classification enables investors to choose and evaluate stocks much easier. It also enables evaluators to set a comparable "peer" group of stocks from the same categories. Froot and Teo (2008) support findings of Barberis and Shleifer (2003) in their research examining price implications of style investing, dividing style per large vs small cap, value vs growth, and industry using ten sectors. While the classical view proclaims that style investing does not affect prices, authors find that institutional investors do take stock style into account when taking financing decisions and allocate across style groups more intensively than across random groups. Above-mentioned papers prove that style investing is crucial for research into the corporate structure. Therefore, this research will divide the institutional share ownership into 21 groups based on the investors' style. The second hypothesis is stated below:

H2: There is a significant difference in the style of institutional investors between sin and non-sin stocks.

Finally, the third investor characteristic that has been predicted to influence investment decisions is the investor location. Grinblatt and Keloharju (2001) study the so-called "home bias" in the national sample of Finnish firms in three categories. Firstly, they find a significant influence of distance from the location of the firm to the investor. Secondly, whether the company communicates in their financial statements in the investor's native language is found to influence investment decisions. Finally, authors find that cultural background similarity of chief executives and investors is of significance. It is also interesting to point out that Grinblatt and Keloharju discover the influence of distance, language and culture is stronger among households and less sophisticated institutions. They also note that marginal effects are smaller for firms that are more known on the national level, firms that have a distance from the investor bigger than 100 kilometres, and for investors whose portfolios are more diversified. More recently, Guenther, Johan and Schweizer (2018) investigate equity crowdfunding platforms in Australia. Their research leads to several compelling conclusions. Firstly, authors find a negative correlation between geographic distance and investment probability of local (national) investors. However, when comparing home to overseas investors, the effect of distance fades away, suggesting that foreign investors are not sensitive to distance. Authors divide home investors into two categories - retail and accredited, but

find similar sensitivity to distance in both groups. It can be seen that the location of the investor, as well as the distance from the company, play a role in determining trading behaviour. Accounting for the location of stock in question, the third hypothesis is formulated as follows:

H3: There is a significant difference in the location of institutional investors between sin and non-sin stocks.

3. Data and Methodology

3.1 Data

Data used in this research is based on a sample of 3,223 stocks extracted from the MSCI Index providing data on environmental, social, and corporate governance performance of companies worldwide. Because the paper focuses on sin stocks, variables in question are alcohol, tobacco, gambling, and military involvement. For the purpose of the study, companies are defined as controversial if they have been classified as involved with either alcohol, tobacco, gambling, or military within the five years from 2011 to 2016. These companies are then marked in the dataset as 'sin' stocks. The sample of 3,223 stocks was reduced to 1,072 due to observations that could not be merged between datasets, as well as missing values for several companies. First, the initial dataset had to be cleared of the same stocks that appeared twice because of minor differences in the company name, such as was the case with "Goldman Sachs Group, Inc." and "The Goldman Sachs Group, Inc.", or companies doubled due to the usage of "Inc." as well as "Incorporated" in a different observation. Secondly, over the span of five years, there were companies that changed their names. Those companies are accounted for only once in the final dataset, using CUSIP codes in order to find duplicates. Moreover, the data from MSCI was merged with the Ownership data from Thomson One, after which only 1,714 observations were left. Furthermore, in order to add control variables to the dataset, CUSIP numbers of each company had to be transferred into global keys (GVKEYs), from which those were translated into Compustat Company IDs. Because WRDS database had missing data on some of company identifiers mentioned above, the final dataset consists of 1,072 stocks. Unfortunately, both time as well as data access were

constraints that could not be surpassed during this research. This loss of data can be the cause of a relatively small number of North American stocks, as will be explained later in this section. Descriptive statistics of these variables can be seen in Table 1 below.

Variable	*Number of Positive Observations*	*Number of Negative Observations*	*Total*
Sin	174	898	1,072
Alcohol	123	949	1,072
Gambling	43	1,029	1,072
Military	30	1,042	1,072
Tobacco	23	1,049	1,072

Table 1: Descriptive Statistics of Controversy Variables

Variables shown above take on values of either 0 or 1, where 1 stands for the involvement of the company with the given controversial activity, and 0 denotes lack thereof. As can be seen in the table, a significant majority of controversial companies is the group of companies involved in alcohol production. In the given sample of 1,072 stocks, 123 are classified as involved in alcohol, and 43 are involved in gambling, while 30 stocks display military involvement. 23 companies are involved with tobacco production. All in all, 174 of the sample are stocks of controversial companies. Logically, the number of positive observations of *sin* (174) should be the sum of *alcohol*, *tobacco*, *gambling*, and *military* (219). The difference in these numbers stems from the fact that 24 stocks are classified as involved with both alcohol and gambling, 19 stocks are classified as involved with both alcohol and tobacco, 7 of these with alcohol, tobacco and military, while 2 stocks are involved with both alcohol and military at the same time.

In order to examine possible differences in characteristics of investors in sin and non-sin stocks, Share Ownership data was derived from the Thomson One database. Because Thomson One provides most recent ownership information, current ownership was exerted and merged with aforementioned stocks from the MSCI database. Thomson One dataset provides vast information on ownership structure as well as the investor profile characteristics. Features that are of importance in this research are divided into three groups:

investor type, investor style, and investor location. Investor types considered will be: investment managers, brokerage firms, and strategic entities, the latter including holding companies, corporations, individuals, and government agencies. Stockholders are also divided into 21 groups depending on their investor style, and into 7 groups depending on their location, for which continental regions will serve as the criterion. Thus, seven location groups include Africa, Asia, Australasia, Europe, Latin America, Middle East, and North America. More detailed information on what Thomson One database defines as each type or style of the investor has been extracted from their website Ownership Glossary and can be found in the appendix. For better understanding of investor styles used in this research, it is recommended to familiarize oneself with the concepts. All aforementioned variables are extracted as percentages of shares outstanding, therefore taking on values from 0 to 100. In the initial sample of 1,078 stocks, *Investment Managers* displayed a maximum value of 177.78, which would mean that, at a certain point, this group held more than 100% of shares outstanding. This confusion arose from the differences in the timing of financial reporting. For the sake of this paper, observations with values higher than 100% were deleted, as those could have affected the results of this research. The table below provides descriptive statistics of dependent variables that will be used for further analysis.

Variable	*Number*	*Mean*	*Skewness*	*Kurtosis*	*Max*
Brokerage Firms	335	.22	7.27	64.89	11.10
Investment Managers	1,071	38.78	.49	2.36	98.58
Strategic Entities	983	26.28	.65	2.16	99.5
Aggressive Growth	701	.17	8.87	108.08	9.08
Arbitrage	3	.00	20.93	451.61	.23
Broker-Dealer	324	.18	7.88	76.13	10.81
Core Growth	1,066	9.98	1.70	6.79	61.59
Core Value	1,066	7.99	1.43	4.96	39.50
Deep Value	976	1.26	3.07	13.89	19.73
Equity Hedge	237	.13	10.57	134.18	12.78
Fund of Funds Hedge	27	.00	15.26	287.95	.09
GARP	1,061	5.55	1.54	6.18	33.22
Global Hedge	142	.01	10.68	154.38	1.45
Growth	1,036	1.73	6.78	90.30	52.61
Hedge Fund	931	1.05	5.02	34.80	26.35
Income Value	804	.19	10.25	119.94	10.05
Index	1,063	6.58	1.04	4.21	28.02

Mixed Style	173	.01	12.22	196.07	1.02
Momentum	120	.01	32.46	1059.48	5.23
N/A	7	.02	16.24	278.18	6.18
Sector Specific	185	.10	11.03	143.63	11.61
Specialty	669	.24	13.55	212.30	39.50
VC/Private Equity	127	.49	11.87	174.87	70.07
Yield	724	.26	8.28	90.82	14.33
Africa	313	1.87	5.77	37.94	80.65
Asia	948	11.05	2.03	5.81	93.21
Australasia	950	2.45	5.06	30.79	84.22
Europe	1,068	32.24	.30	1.75	97.50
Latin America	249	2.74	5.06	29.14	99.50
Middle East	84	.47	10.57	135.58	55.00
North America	1,070	14.29	2.14	10.36	84.05

Table 2: Descriptive Statistics of Investor Profile characteristics

The table shows numerous points that will help analyze the data that will be used for further research. Firstly, the most-left column shows the number of observations that take on values bigger than zero for a given variable. It can be seen that few variables have over 1,000 out of 1,078 observations that are higher than zero, these are *Investment Managers*, *Core Growth*, *Core Value*, *GARP* (which stands for Growth at a Reasonable Price), *Growth*, *Index*, *Europe*, and *North America*. Not surprisingly, characteristics that display fewer observations with values bigger than zero, also display lower overall means in the next column. Indeed, it can be said that, on average, stocks are held primarily by investment managers, and by strategic entities on a slightly lower scale. In this sample, the average stock is held only in 0.22% by brokerage firms. Core growth and core value investing styles prevail in average stock ownership, with mean values of 9.98% and 7.99%, respectively. What is interesting to point out is that 14 out of 21 investor style characteristics have mean values lower than 1. Here, it is important to compare this finding with values in the right column, labeled *Max*, which shows the maximum value the given variable reaches in the sample. Numerous investor style variables do not have a single observation that exceeds 15%, as can be seen highlighted in the table. This value is subjectively set as a benchmark and characteristics that do not exceed 15% are expected to deem insignificant results in the research. More importantly, several variables have high maximum values relative to their mean. This can signal skewed distribution. In order to examine this, Skewness and Kurtosis values were added to the table. Both values are

useful when examining the symmetry of the distribution. For comparison, normal distribution takes a value of 0 for skewness and 3 for kurtosis. In the sample, all variables exhibit positive skewness, meaning that their distribution is skewed to the right. This finding can be explained by the fact that with the multitude of different investor characteristics, most of them will each hold a small part of outstanding shares of a given company, thus skewing the distribution to the right. Only strategic entities, investment managers, and European investors have a skewness value lower than 1. These are also characteristics that display the highest mean values. Regarding kurtosis, once again investment managers, strategic entities and European investors display values lower than 3, thus exhibiting distributions flatter than that of the normal distribution. What is worrying for both skewness and kurtosis is that many variables have abnormally high values for both, such as the *Momentum* variable, which exhibits the highest values for skewness as well as kurtosis. A detailed summary by a statistical software shows that, while the largest value this variable takes on is 5.23, its second highest is noticeably lower, equal to 0.18. Considering all values in Table 2, it can already be deducted that characteristics such as *Middle East* or *Brokerage Firms* can be expected to show insignificant regression results in the remained of the paper.

Findings in Table 2 also show that, on average, stocks are held institutionally in 65.28%. Table 3 shows the breakdown of mean values per dummy of controversy. It can be seen that while average stock in the full sample is held institutionally in 65.28%, sin stocks show a slightly higher institutional ownership (69.31%), while non-sin stocks are held by institutional investors to a somewhat lower percentage, equaling 64.70%. This itself is an interesting finding, as it is not in accordance with Hong and Kacperczyk (2009), whose findings suggest that sin stocks are held less by institutions subject to greater social norm constraints, which, in this sample, is not the case when comparing institutional to private investors.

Variable	*Mean*		
	Overall	Non-Sin	Sin
Brokerage Firms	.22	.21	.26
Investment Managers	38.78	39.54	34.84
Strategic Entities	26.28	24.96	33.09
Aggressive Growth	.17	.17	.18
Arbitrage	.00	.00	0.00

Broker-Dealer	.18	.18	.16
Core Growth	9.98	10.11	9.34
Core Value	7.99	8.17	7.11
Deep Value	1.26	1.23	1.46
Equity Hedge	.13	.15	.07
Fund of Funds Hedge	.00	.00	.00
GARP	5.55	5.74	4.29
Global Hedge	.01	.01	.02
Growth	1.73	1.76	1.57
Hedge Fund	1.05	1.10	.74
Income Value	.19	.17	.29
Index	6.58	6.61	6.40
Mixed Style	.01	.01	.00
Momentum	.01	.01	.00
N/A	.02	.01	.07
Sector Specific	.10	.10	.11
Specialty	.24	.21	.43
VC/Private Equity	.49	.57	.04
Yield	.26	.27	.20
Africa	1.87	1.98	1.29
Asia	11.05	9.72	17.87
Australasia	2.45	2.62	1.58
Europe	32.24	33.02	28.21
Latin America	2.74	2.69	3.04
Middle East	.47	.45	.56
North America	14.29	14.04	15.63

Table 3: Mean values per 'sin' dummy

The sample of variables on which the analysis will be based is completed by adding variables that will control for company-specific features that could otherwise bias the results. Cross-sectional information is extracted from the Global Compustat Annual Fundamentals database for the year 2017 for all companies used in the sample. Control variables include *Assets*, *Dividends*, *Employees*, *Financial*, and *Location*. Firstly, natural logarithm of total assets of the company is added as a control variable, as it can be a driver of investment decision-making of investors with specific characteristics. For the purpose of the research, this variable serves as proxy for the size of the company. Because it can be expected that investors will prefer companies based on their size, this characteristic must be accounted for. Likewise, total amount of dividends on equity capital was divided by the total amount of assets in order to

scale the amount for it to be comparable across companies. In this research, the variable takes on the name of *Dividend Yield* and is added to the regression models. Out of the 1,072 companies in the sample, 746 pay dividends, meaning the remaining 346 have dividends of 0. This variable is expected to have an effect particularly on the style of investors, who can be driven to form a portfolio or invest in stocks based mostly on whether or not the company pays dividends. *Employees* variable equals the number of employees of the company in thousands. *Financial* is a dummy variable that takes on a value of 1 if the given company is in the financial industry, including banks, insurance companies, brokers and dealers, real estate, and other financial services, and a value of 0 for industrial companies, reporting retail, manufacturing, construction, and other commercial operations other than financial services. Lastly, the location of the stock is crucial to the third hypothesis and is presumed to impact the location of investors. It takes on values of 1 to 7, corresponding to the above-mentioned geographical regions in alphabetical order. Descriptive statistics of control variables can be seen in Table 4, which shows the mean breakdown per 'sin' dummy, as seen in Table 3. The *Location* variable is shown in the matrix labeled Table 5, showing means of shares held as a percentage of shares outstanding, per location of the owner as well as the location of the stock listing.

Variable	*Mean*		
	Overall	Non-Sin	Sin
Ln Assets	10.005	9.898	10.559
Dividend Yield	0.023	0.023	0.018
Employees (in thousands)	35.980	32.093	56.043
Financial	.209	.232	.092

Table 4: Mean values of control variables per 'sin' dummy

Table 4 leads to interesting inferences that sin stocks tend to have, on average, higher assets as well as size, as calculated by the number of employees. However, sin stocks tend to have a lower dividend-to-assets ratio compared to non-sin stocks. Values in table 4 regarding *Dividend Yield* seem to include a mistake. Rounding up the means shows the same mean for both non-sin dividend ratio as well as the overall mean. However, the former equals 0.0235, while the latter is 0.0226. Considering only the 746 companies that pay out dividends, the

mean increases to 0.0325. Because *Financial* is a dummy variable, it shows that the average amount of financial firms in the whole sample is 20.9% (224 companies), which is significantly lower for sin stocks (9.4%, corresponding to 16 out of 170 companies) than non-sin stocks (23.1%, equal to 208 out of 902 companies).

Location of Stock

Location of Owner Mean	*Africa* *(41)*	*Asia* *(243)*	*Australasia* *(87)*	*Europe* *(641)*	*Latin America* *(43)*	*Middle East* *(4)*	*North America* *(13)*
Africa	40.56	.21	.03	.44	.12	.00	.00
Asia	1.32	44.72	2.28	1.07	.59	.05	.84
Australasia	.29	.13	27.87	.24	.08	.04	.06
Europe	13.74	7.57	5.03	48.56	10.98	3.63	7.92
Latin America	.00	4.69	1.08	.46	32.83	0.00	.10
Middle East	.14	.13	.47	.49	.23	19.53	1.37
North America	13.46	9.87	10.88	15.95	22.33	5.89	16.84

Table 5: Location matrix of stock listing and ownership

Table 5 shows the mean percentage of stocks held by investors in a given location, divided in columns into the location of the stock listing. Adding shown values weighted by the number of stocks in the given region equals the average holding of stocks by investor location, as shown in Table 3 above. As predicted, Table 5 shows that stocks are held in the highest percentage by institutional owners from the same region. Logically, investors should be more prone to hold stocks that are listed in their own or a neighboring country (Coval & Moskowitz, 1999). Table 5 also proves that European and North American investors hold big parts of stocks regardless of their location and display second and third highest ownership percentages for all stocks that are listed outside of their regions.

It is crucial to point out the number of companies in the sample that are listed in the given region, which can also be seen in parentheses under the region name. Out of the sample of 1,072 stocks, 41 are listed in Africa, 243 in Asia, 87 in Australasia, 641 are listed in Europe, 43 in Latin America, 4 in Middle East, and 13 in North America. The number of stocks listed in

North America is much lower than would be expected, given the importance the region plays in global economies. The small number of stocks listed in North America can be explained by missing data and observations that could have been lost in the process of merging data from several distinct sources. Due to this shortcoming, the research will lead to significant results majorly in regions where the amount of stocks listed is higher. Out of the 1,072 stocks, 456 (42.54% of the sample) are held by investors from the same region as the location of the stock listing.

In order to ensure that there is no multicollinearity between independent variables, the correlation between these variables needs to be examined. Results of the correlation can be seen in Table 6 below. This table shows that no strong correlation exists between selected independent variables. Therefore, there is no threat of multicollinearity in the sample.

correlation	*sin*	*location*	*financial*	*ln assets*	*dividends*	*employees*
sin	1.0000					
location	-0.0435	1.0000				
financial	-0.1267	-0.0008	1.0000			
ln assets	0.1045	-0.2865	0.3163	1.0000		
dividends	-0.0461	-0.0159	-0.0999	-0.2571	1.0000	
employees	0.1234	0.0049	-0.0711	0.3423	-0.0574	1.0000

Table 6: Correlation of independent variables

3.2 Methodology

The methodology of the research includes OLS regressions run separately on each investor characteristic as the dependent variable. *Sin* dummy is the main independent variable of focus in the regression. Moreover, control variables described above are added in order to account for firm-specific characteristics that could, as has been mentioned before, affect the investment choice of certain investors, apart from whether the given company is seen as controversial or not. The general regression equation is formulated as follows:

$$\%\ ownership = \beta_0 + \beta_1 * sin + \beta_2 * location_2 + \beta_3 * location_3 + \beta_4 * location_4 + \beta_5 * location_5 + \beta_6 * location_6 + \beta_7 * location_7 + \beta_8 * financial + \beta_9 * lnassets + \beta_{10} * dividends + \beta_{11} * employees + \varepsilon$$

Because *location* is a categorical variable that takes on variables from 1 or 7 corresponding alphabetically to 7 regions described above, the regression is run on six separate dummy variables of categories of location. This methodology will allow for analysis of an effect of each location of the stock individually. That is why each regression will yield the constant as well as 12 coefficients of independent variables.

4. Results

Since the sample consists of 31 investor (3 *type*, 21 *style*, and 7 *location*) characteristics, 31 separate models are created and results of economically meaningful regressions are examined in this section. The examination of variables in the previous section suggested that a model such as using brokerage firms as the dependent variable, with the maximal value of 11.10% and high values of skewness and kurtosis, would not lead to significant results. Indeed, the value of R-squared of this model is over four times lower than values of models on other investor types. R-squared of 0.032 suggests that only 3.2% of variation is explained by the model, which is very low statistically, but also when compared to R-squared of 0.139 and 0.218 for the other two models. Moreover, the coefficient of *sin* is not significant at the 10% level. Therefore, this regression can be seen in Table A1 in the Appendix. Regression results run on the remaining two characteristics of investor type can be seen in Table 7.

4.1 Investor type

The independent variable of most focus in this research, *sin*, for investment managers (-1.57) shows that being a controversial stock reduces the share ownership of this investor type. This coefficient is however not significant at the 10% significance level. Recalling Friede, Busch, and Bassen (2015), most studies show a positive relationship between CSR ratings and stock returns. This would imply that investment managers, whose goal is to generate high returns for clients' portfolios, would choose to invest in stocks of non-controversial companies with high ratings. The negative relationship with investment managers ownership is also suggested

by the coefficient of *sin* in Table 7. Strategic entities, on the other hand, hold on average almost 6% more sin stocks as opposed to non-sin stocks, significant at the 5% level. Seeing as Thomson One defines strategic entities as those that "don't invest for 'investment management' purposes" (Ownership Glossary), it can be inferred that the effect of sin could be contrary to the effect on investment management ownership. Indeed, the coefficient signs are different for those investor types. Coefficients of *sin* are also in line with the statistics provided in Table 3. Indeed, mean percentage of sin stocks held is higher than non-sin stocks for strategic entities and lower for investment managers.

It is important to examine the control variables in the regressions. The first control variable is the categorical variable of stock listing location. Africa is the region that was left out for the purpose of regression, therefore the coefficients show the relationship of share ownership per location, relative to the stock being listed in Africa. Listing location different than Africa lowers significantly the percentage ownership by investment managers. This change is highest for Middle East (-36.80%), while for Asia, Australasia, Europe, Latin and North America it equals -19.01%, -26.37%, -8.62%, -18.93%, and -26.91%, respectively. All coefficients display significance at the 1% level. Results of the regression suggest that investment managers ownership is abnormally high in Africa, relative to the other regions. Companies in the financial industry display a 3.05% higher investment manager share ownership, as opposed to their industrial counterparts. The size of the company, accounted for in the regression by the use of *lnassets*, is suggested to have a negative effect on the ownership by investment managers, with the coefficient equal to -3.15 and significant at the 1% significance level. This relationship indicates that a 1% increase in assets of the company leads to an over 3% decrease in the investment manager ownership. Surprisingly, the amount of dividends and the number of employees do not have a significant influence on the share ownership by investment managers. However, the coefficient of dividends seems relatively high, equaling 11.91. While stocks listed in Asia as opposed to Africa are held 19.01% less by investment managers, they seem to be held 20.58% more by strategic entities. It is interesting to point out that share ownership by strategic entities increases by 18.37% with the stock being listed in Latin America as opposed to Africa, while decreasing by 15.72% with the stock listing in North America.

Finally, the regression results must be compared for their R-squared values. Both investor type models shown in Table 7 display high R-squared values, relative to the model in Table A1 in the Appendix, run on brokerage firms. Values of 0.218 and 0.139 suggest that models explain only 21.8% and 13.9% of the variation, respectively, which is statistically a low result.

VARIABLES	INVESTOR TYPE	
	Investment Managers	Strategic Entities
sin	-1.570	5.226**
location - asia	-19.005***	20.576***
location - australasia	-26.368***	-0.262
location - europe	-8.624***	3.817
location - latin america	-18.931***	18.372***
location - middle east	-36.796***	-0.471
location - north america	-26.908***	-15.727***
financial	3.050*	-3.099
ln assets	-3.150***	0.817*
dividend yield	11.911	-5.846
employees (in 1000s)	0.011	-0.021*
Constant	82.068***	11.312**
R-squared	0.218	0.139

*** p<0.01, ** p<0.05, * p<0.1

Table 7: Regression results on investor type characteristics

4.2 Investor style

The second group of characteristics the regressions were run on is the investor style. Table 8 shows results of regressions run on five economically significant characteristics, chosen by the significance of descriptive statistics from the Data section as well as R-squared of the regressions. Results of regressions on remaining 16 groups can be found in Table A2 in the Appendix. It is most interesting to examine the model of *hedge fund*. Hong and Kacperczyk (2009) find that less norm-constrained institutions, such as hedge funds, which they call "natural arbitrageurs" are more likely to hold sin stocks. Below, the regression results show, however, that hedge fund holding decreases for sin stocks, as opposed to non-sin stocks. While this comes as a shocking finding, it must be remembered that the coefficient is not significant and the values of *hedge fund* were skewed distinctly, suggesting that the given sample might not be enough to draw conclusions off its results. However, the sign of the

coefficient remains puzzling. Furthermore, both assets and dividends seem to have an effect significant at the 1% significance level. With the constant of the model equal to 4.575, dividend-to-assets ratio coefficient equal to -7.062 is surprisingly high. The relationship can be balanced out if the investor is from North America, whose coefficient equal to 2.988 is significant at the 10% significance level. Moreover, while it can be seen that percentage ownership by index and core growth investors increases slightly with the stock being classified as 'sin', and while core value, and hedge fund investor percentage decreases for sin stocks, none of the *sin* coefficient in the models is significant at the 5% significance level. The coefficient for *index,* while positive, is close to zero and insignificant. Therefore, it could be seen as suggesting no relationship between the stock being controversial and the ownership by index investors. This is a logical finding, seeing as index investors are often called passive, for their portfolios are formed to match existing indices. Therefore, they do not actively choose neither controversial nor non-controversial stocks. Interestingly, core growth and core value investing are expected to include different styles of investors. This expectation is also suggested to be reasonable by the *sin* coefficients of opposite signs. Therefore, it could indicate that sin stocks tend to be growth as opposed to value stocks. However, because the coefficients are relatively small and not significant, no relationship can be proven by the results. The value is, however, significant at a 1% significance level for GARP investors, for which the coefficient is negative and amounts to -1.12. With the constant of over 12, it is quite a change for investor percentage between controversial and non-controversial stocks. This model is also one with the highest number of significant coefficients but at the same time one with second lowest R-squared value out of the models in Table 8.

In the model based on GARP, the percentage ownership is lower for all stock locations relative to Africa. Ownership decreases significantly but slightly with a percentage increase in assets and the number of employees. Models run on *core growth* and *core value* display R-squared of 0.158 and 0.173, respectively. *GARP* and *hedge fund* models have slightly lower R-squared values, equal to 0.099 and 0.100. These values are high relative to all 21 models on investor style. The fifth economically important model is the one with third highest R-squared amongst regressions on investor style characteristics, with its value equal to 0.153.

VARIABLES	INVESTOR STYLE				
	Core Growth	Core Value	GARP	Hedge Fund	Index
sin	0.093	-0.310	-1.123***	-0.206	0.167
location - asia	1.056	-4.279***	-2.705***	0.034	-2.717***
location - australasia	-5.004***	-4.640***	-5.183***	-0.412	0.543
location - europe	4.095***	-0.675	-1.987**	0.120	0.712
location - latin america	-1.160	-5.144***	-3.337***	1.292***	-2.031**
location - middle east	-4.521***	-5.402***	-6.550***	-0.414	-3.580***
location - north america	-2.524	-6.072***	-3.905**	2.988*	-4.685***
financial	0.328	-0.150	-0.170	0.021	1.587***
ln assets	-0.800***	-0.793***	-0.396***	-0.350***	0.059
dividend yield	16.969**	-2.023	-0.263	-7.062***	8.719**
employees (in 1000s)	-0.004	0.004	-0.002*	0.001	0.008***
Constant	15.479***	17.970***	12.204***	4.575***	5.438***
R-squared	0.158	0.173	0.099	0.100	0.153

*** p<0.01, ** p<0.05, * p<0.1

Table 8: Regression results on investor style characteristics

Table A2 shows regression results on the remaining investor style characteristics. R-squared of all these models is lower than 0.10. *Aggressive growth*, *arbitrage*, and *broker-dealer* were analyzed in the previous section and also expected not to deem significant results. Indeed, R-squared values of these three models, shown in Panel A of Table A2, are low compared to those in Table 8, with values of 0.043, 0.073, and 0.044, respectively. Interestingly, while the model on *arbitrage* has relatively high R-squared, the results of the regression on *arbitrage* display all coefficients close to 0 and none significant. Indeed, *arbitrage* had the maximum value of 0.23 and kurtosis of over 450. *Broker-dealer* is a model that does have a few significant coefficients. However, those are relatively close to zero as well. It can be seen that deep value investor percentage increases slightly for sin stocks as opposed to non-sin stocks. This coefficient is also significant at the 10% significance level. Income value investor percentage ownership increases when the stock is controversial, while *growth* and *mixed style* characteristics display a negative relationship. Once again, a relationship can be seen between the low R-squared value, few significant coefficients and initial abnormally high skewness and kurtosis values in the data section, when examining the models run on several style characteristics in Table A2, Panel B. Regressions run on the remaining 6 variables can be seen in Panel C of Table A2. These do not show very significant results. Coefficients of *sin* are not significant apart from *private equity*, which seems to decrease by 0.48% with the increase

in the dummy of controversy variable. Yield-focused investor percentage increases slightly but significantly when the location is listed in Asia, Australasia, Europe, relative to Africa. It also increases for Latin and North America, albeit not significantly at the 10% level. R-squared values of these models are also relatively low.

4.3 Investor location

In order to examine not only controversial but global differences in share ownership, it is interesting to see the results of regressions on investor location, shown in Table 9 below. Durand, Koh, and Tan (2013) in their study based on Hong and Kacperczyk (2009) extended to Australian and Asian markets find that substantial share ownership decreases for sin stocks in Australia and New Zealand, while increasing for Japan and South Korea. In contrast to other, global and US-based studies, they find that sin stocks in Asia, Australia, and Oceania display negative returns, which should lead to negative coefficients in Table 13 for both Australasia and Asia, if one was to assume that investors take returns into account in the decision-making process. However, in the sample of this research, as shown in Table 13, Asian-investor ownership increases by 4.02% for sin stocks, relative to non-sin stocks, significant at the 1% significance level. *Sin* coefficients are also positive for Africa, Middle East, and North America, with the last coefficient significant at the 10% level. However, Australasian, European, and Latin American share ownership decreases when the stocks are labeled as controversial. Therefore, findings in the research show the opposite effect to those of Durand, Koh, and Tan (2013). Positive coefficient for *sin* in North America can also come as a surprise, since North American investors, who are required to file their holdings on a regular basis, could be expected to prefer non-controversial investment due to the public exposure and possible drop in reputation. However, a possible explanation for the positive coefficient is that North American investors can have different opinions regarding what stocks are controversial than investors in other parts of the world. North American ownership seems to increase by 1.94 for stocks labeled 'sin', while it decreases for European investors. These coefficients, however, are not significant at the 5% significance level. Controlling for the location of the stock listing shows significant results for the location of the investor. Interestingly, with the constant of 41.76, location of the stock anywhere apart from Africa lowers the percentage of African investors by over 40% as well, pulling the ownership to almost zero for international

investors. This strengthens findings from Table 5. Moreover, it is interesting to point out that, while the ownership of global stocks can be higher than what the sample shows, African, Asian, or European investors are not as incentivized to disclose their share ownership as, for example, North American ones, who are required to report their share ownership regularly.

	INVESTOR LOCATION		
VARIABLES	Africa	Asia	Australasia
sin	0.118	4.017***	-0.301
location - asia	-40.163***	43.131***	0.426
location - australasia	-40.699***	0.981	26.577***
location - europe	-40.234***	-0.320	-0.558**
location - latin america	-40.347***	-1.233*	0.173
location - middle east	-40.489***	-0.996	0.282
location - north america	-40.509***	-0.174	-0.208
industry	0.221	0.316	-0.063
ln assets	-0.118*	-0.022	-0.412***
dividend yield	-2.529	-8.281	8.287
employees (in 1000s)	0.000	-0.006	0.002
Constant	41.763***	1.324	4.444***
R-squared	0.692	0.675	0.635

Table 9: Regression results on investor location characteristics – Panel A

Regression results show an increase in the share ownership of the given investor location when the stock is listed in the same region, as can be seen highlighted in Table 9. Most coefficients are significant at the 1% significance level, while the coefficient in the model on Middle East is significant at 5%. Only the coefficient of North America is not significant, even at the 10% level. This can be due to a surprisingly small number of stocks listed in North America in the given sample, as explained in the previous section. Most remarkably, the R-squared value of models run on African, Asian, Australasian, and European investor location display model prediction of over 60% of the variance. Latin American model has R-squared value of 0.292, while *Middle East* and *North America* both display a relatively low R-squared, meaning that the models explain only a small part of the variation in the dependent variables.

	INVESTOR LOCATION			
VARIABLES	Europe	Latin America	Middle East	North America
sin	-0.907	-1.162	0.214	1.936*
location - asia	-4.039	5.015***	-0.024	-3.280**
location - australasia	-11.033***	1.107	0.366	-3.865**
location - europe	34.040***	0.401	0.295	1.701
location - latin america	-1.342	33.077***	0.047	8.885**
location - middle east	-8.953***	0.262	19.361**	-6.692***
location - north america	-4.906	-0.117	1.176	3.318
industry	0.123	-0.793	0.185	-0.131
ln assets	-1.014***	-0.127	-0.030	-0.490***
dividend yield	8.737	-5.871	-3.352**	11.839
employees (in 1000s)	-0.019***	0.004	0.002	0.006
Constant	24.594***	1.567	0.403	18.087***
R-squared	0.617	0.292	0.126	0.089

Table 9: Regression results on investor location characteristics – Panel B

4.4 Discussion

The aim of the research has been to define the investor profile of shareholders of controversial companies. For the ease of interpretation, sin coefficients are summarized in Table 10 below:

INVESTOR	*sin*	INVESTOR	*sin*	INVESTOR	*sin*
Aggressive Growth	0.017	Hedge Fund	-0.206	Brokerage Firms	0.027
Arbitrage	-0.001	Income Value	0.150	Investment Managers	-1.570
Broker-Dealer	-0.057	Index	0.167	Strategic Entities	5.226**
Core Growth	0.093	Mixed Style	-0.007**		
Core Value	-0.310	Momentum	-0.006	Asia	4.017***
Deep Value	0.427*	N/A	0.064	Africa	0.118
Equity Hedge	-0.059	Sector Specific	0.093	Australasia	-0.301
FoF Hedge	-0.000	Specialty	0.228	Europe	-0.907
GARP	-1.123***	VC / Private Equity	-0.478***	Latin America	-1.162
Global Hedge	-0.000	Yield	-0.045	Middle East	0.214
Growth	-0.110			North America	1.936*

Table 10: 'Sin' coefficients per investor type, style, and location

The first hypothesis of this research concerns the type of the investor. The discussion in the Results section showed that no significant difference in ownership by brokerage firms was found. However, the remaining two investor types do show differences in ownership of sin

and non-sin stocks, the difference being negative for investment managers and positive for strategic entities, significant at the 10% level. Therefore, the first hypothesis suggesting no difference in investor type ownership structure is rejected.

The second hypothesis was formulated based on the investor style. The examination of regression results led to the majority of *sin* coefficients being insignificant and close to 0. Only three out of 21 coefficients are significant at the 5% level, while two of them are in models that were deemed insignificant earlier in the paper. Therefore, the hypothesis proposing that there is no difference in investor style ownership between sin stocks and non-sin stocks cannot be rejected.

The final hypothesis of the paper indicated no difference in controversial and non-controversial company share ownership per the location of the investor. Accounting for the location of the stock listing heightened the R-squared values of the models strongly. However, *sin* coefficient was only significant for the models on Asian and North American investors. In the case of Asia, the coefficient was of the opposite sign to what had previously been found in the literature. While the coefficients of the remaining models were not significant, it was important to examine the signs of *sin.* Those of European and North American investors were surprisingly different from what common sense would lead to expect.

5. Conclusion

Three hypotheses helped form an investor profile of 'sin' stocks holders in order to answer the paper's research question. The regression results confirmed the preliminary expectations on mean values of each variable. While, on an aggregate level, all stocks are held mostly by investment managers and strategic entities, percentages of sin stock ownership decrease for investment managers and increase for strategic entities. The average investor ownership was the highest for core growth, core value, and GARP investors. Each of those values led to most significant regression results, with decreasing ownership for stocks of controversial companies. Descriptive statistics of investor location showed, unsurprisingly, highest ownership percentages for European and North American investors. Accounting for the location of the stock listing, however, led to different findings. Significant positive difference between sin and non-sin stock ownership was found only for Asian investors. Sin stocks

experience a higher North American investor ownership and a lower European investor ownership when compared to non-sin stocks.

This research could not avoid restraints. Both the access to data as well as time constraints were the most impactful limitations encountered during the research. Firstly, because data had been extracted from several sources, important information, as well as crucial observations, could have been left out. Secondly, as explained in the Data section, the sample was not representative of the population, as it included an abnormally small number of North American stocks, relative to other regions. Due to issues with the data, regression results were insignificant and could not be interpreted as expected. Still, they led to interesting observations discussed earlier in the paper.

For the purpose of further research, it is recommended to cautiously find and merge data across datasets or, if possible, find a single database that offers unrestricted access to all variables needed. Due to recent exclusions by numerous companies mentioned in the introduction and theoretical framework of the research, it might be of interest to examine a panel dataset in order to find whether differences in sin stock ownership have changed over time. Moreover, accounting for the legal and religious environment could lead to different results worth examining. Furthermore, insightful findings can be achieved by investigating high ESG score companies separately from all non-sin stocks. Investor style models are expected to lead to profound discoveries after controlling for the style of stocks themselves.

Appendix

Tables

	INVESTOR TYPE
VARIABLES	Brokerage Firms
sin	0.027
location - asia	0.237***
location - australasia	-0.027
location - europe	0.151**
location - latin america	-0.042
location - middle east	0.148
location - north america	1.230***
industry	-0.181***
ln assets	0.021
dividend yield	-0.397
employees (in 1000s)	-0.001***
Constant	-0.078
R-squared	0.032

*** p<0.01, ** p<0.05, * p<0.1

Table A1: Regression results on economically insignificant investor type characteristic

	INVESTOR STYLE				
VARIABLES	Aggressive Growth	Arbitrage	Broker - Dealer	Deep Value	Equity Hedge
sin	0.017	-0.001	-0.057	0.427*	-0.059
location - asia	0.118***	0.000	0.298***	0.158	-0.474
location - australasia	-0.064	-0.000	0.045	-0.464	-0.642*
location - europe	0.126***	0.000	0.161***	0.755***	-0.479
location - latin america	0.419***	0.000	0.024	0.285	-0.229
location - middle east	0.014	0.000	0.195	-0.280	-0.560
location - north america	0.187	0.024	1.280***	-0.054	-0.586
industry	-0.072**	-0.000	-0.186***	0.485**	0.026
ln assets	-0.036**	-0.000	0.024	-0.257***	-0.038*
dividend yield	-0.571	-0.007	-0.529	-0.878	-0.593
employees (in 1000s)	-0.000**	0.000	-0.001**	0.002**	0.000
Constant	0.446**	0.002	-0.161	3.139***	0.988**
R-squared	0.043	0.073	0.044	0.085	0.027

*** p<0.01, ** p<0.05, * p<0.1

Table A2: Regression results on economically insignificant investor style characteristics – Panel A

VARIABLES	INVESTOR STYLE				
	Fund of Funds Hedge	Global Hedge	Growth	Income Value	Mixed Style
sin	-0.000	-0.000	-0.110	0.150	-0.007**
location - asia	0.000**	-0.000	0.146	-0.475	0.005
location - australasia	-0.000	-0.004	0.522	-0.562*	0.005
location - europe	0.000***	0.015***	-0.473	-0.390	0.015***
location - latin america	0.000*	0.018**	-1.114**	-0.527*	-0.000
location - middle east	0.000	-0.003	-1.614***	-0.547*	-0.001
location - north america	0.007	-0.006**	-0.602	-0.309	0.000
industry	0.000	-0.008**	-0.081	0.038	-0.007**
ln assets	-0.000*	-0.001	-0.104	-0.011	0.001*
dividend yield	-0.004	-0.052	4.542**	0.022	0.017
employees (in 1000s)	-0.000	0.000	-0.001	0.000	-0.000**
Constant	0.002*	0.013	2.999***	0.676**	-0.011
R-squared	0.045	0.015	0.033	0.025	0.011

*** p<0.01, ** p<0.05, * p<0.1

Table A2: Regression results on economically insignificant investor style characteristics – Panel B

VARIABLES	INVESTOR STYLE					
	Momentum	N/A	Sector Specific	Specialty	VC/Private Equity	Yield
sin	-0.006	0.064	0.093	0.228	-0.478***	-0.045
location - asia	0.002	-0.062	0.045	-0.118	-0.164	0.271***
location - australasia	0.000	-0.072	-0.083	0.095	-0.578*	0.286**
location - europe	0.013	-0.034	-0.052	0.415***	0.202	0.239***
location - latin america	0.001	-0.065	-0.030	-0.080	1.370	0.583*
location - middle east	0.002	-0.050	-0.166	0.023	-0.365	0.021
location - north america	0.002	-0.052	-0.026	0.107	-0.359	0.059
industry	-0.007	0.009	0.450***	-0.223*	-0.004	0.079
ln assets	-0.000	-0.002	-0.055***	0.079*	-0.061	-0.043**
dividend yield	-0.019*	0.221	-0.352	1.139	2.188	-1.225***
employees (in 1000s)	0.000	-0.000	0.000	-0.001*	-0.001	-0.000**
Constant	0.005	0.075	0.572***	-0.745*	1.075	0.469**
R-squared	0.002	0.010	0.064	0.013	0.015	0.022

*** p<0.01, ** p<0.05, * p<0.1

Table A2: Regression results on economically insignificant investor style characteristics – Panel C

Investment Type:

Brokerage Firms: A sell side investment firm which acts as an intermediary between a buyer and seller usually charging a commission. Brokerage firms in the TF database are typically those which service the institutional investment community.
Investment Managers: buy-side institutions that have discretionary power over assets under management (AUM) and make buy/sell decisions.
Strategic Entities: Entities (Corporations, Holding Companies and Individuals) that don't invest for 'investment management' purposes, but rather invest for strategic stakes in companies. They may also be an officer or director in the company.

Corporation: Typically a business organization that is given many legal rights as an entity separate from its owners. For Ownership purposes, these entities will typically be set up to represent its strategic investments.
Holding Company: A company that owns enough voting stock in another firm to control management and operations by influencing or electing its board of directors, therefore being able to control its policies and management.
Individual Investor: Individual wealthy investors or officers and directors.

Investment Style:

Aggressive Growth: Aggressive growth investors employ an extreme version of the growth style. This can be seen by their propensity to hold the stocks of companies that are growing their revenue and EPS extremely quickly, are in an early stage of their life cycle, or have minimal or no current earnings.
Arbitrage:

Convertible Arbitrage: Hedge fund managers in this category construct long portfolios of corporate convertible securities, such as convertible bonds, convertible preferred stock, and warrants, and hedge the equity element of these positions by selling short some portion of the common stock into which the convertible securities may be converted.
Fixed Income Arbitrage: This trading style describes a wide variety of strategies involving fixed income securities. Hedge fund managers attempt to exploit relative mis-pricing between related sets of fixed income securities. The generic types of fixed income hedging trades include: yield curve arbitrage, corporate versus Treasury Swap yield spreads and cash versus futures.
Capital Structure Arbitrage: This strategy exploits the pricing inefficiencies that exist in the capital structure of the same issuer. An example is going long on a high yield bond and shorting the stock of an issuer, to hedge the equity risk component of the high yield bond.
Statistical Arbitrage: This strategy profit from pricing inefficiencies identified through the use of mathematical models.

Broker Dealer: Broker-Dealers are usually trading facilitators rather than investors. Included in this group are sell-side research firms with broker operations, NYSE and NASDAQ trading desk positions of investment banks, investment banking client desks that execute buyback programs on behalf of corporations, private client firms that essentially act as custodians for high net worth individuals, and brokers that sell unit investment trusts or exchange traded products.
Core Growth: Core Growth managers typically invest in mid or large capitalization, blue chip companies that have historically performed near the top of their sector or the S&P 500 in terms of profitability, earnings growth, and revenue growth. These investors are often willing to pay premium P/E multiples for highly sustainable businesses, strong management and consistent growth over the long term.

Core Value: Core Value investors focus on buying companies at relatively low valuations on an absolute basis, in relation to the market or its peers, or in comparison to an individual stock's historical levels. These portfolios typically exhibit price-to-earnings, price-to-book and price-to-cash flow multiples below the S&P 500. In addition, secular revenue growth rates of the companies in these portfolios are frequently below market averages and their earnings tend to be more cyclical.

Deep Value: Deep Value investors employ a more extreme version of value investing that is characterized by holding the stocks of companies with extremely low valuation measures. Often these companies are particularly out-of-favor or in industries that are out-of-favor. Some investors in this category are known for agitating for changes such as new management, a merger, or the spin-off of a subsidiary.

Equity Hedge:

Long / Short: This strategy seeks to achieve absolute capital appreciation by investing in equity securities. The risk associated with long investment positions is reduced by taking short positions in securities that are thought to be overvalued.

Long Bias: This strategy is similar to a mutual fund, except the manager can trade a variety of financial instruments and use leverage.

Short Bias: In this strategy a manager consistently maintains a net short exposure to the market.

Market Neutral: Invests in long and short equity positions. Neutrality can be established in terms of dollar exposure, beta exposure, exposure to sectors, industries, market capitalization, interest rate sensitivity, and other risk factors.

Fund of Funds Hedge: A hedge fund which invests in other hedge funds. Funds of funds can invest in multiple managers of a single strategy or multiple strategies.

GARP: GARP investors try and build their portfolios with two types of securities: 1.) Those that are trading at a discount to the market or their peers yet are expected to grow at higher than the market average or their peers; and 2.) Those whose forward P/E ratio is less than, equal to, or only slightly above the long term projected growth of the company. Stated another common way, GARP investors will often say they are either looking at large-cap stocks whose PEG ratio (forward P/E divided by five year projected growth) is less than the S&P 500 or at any sized company whose PEG ratio is less than 1. This is a more conservative investment style in comparison to an outright growth-oriented strategy. In addition, dividend yield is generally not a concern of most GARP investors.

Global Hedge:

Macro: This strategy employs an opportunistic approach attempting to capitalize on global macro-economic trends across markets and sectors. This approach is primarily based on economic analysis and forecasts of shifts in interest rates, currencies, equities and commodities, as well as monetary and other public policy developments.

Emerging Markets: Emerging market hedge funds focus on equity or fixed income investing in emerging markets as opposed to developed markets. Emerging markets investors generally have a strong long bias.

Growth: Growth investors bridge the gap between the Aggressive Growth and Core Growth investment styles. They tend to be slightly more aggressive than Core Growth investors, willing to pay slightly higher multiples for stocks and trade at a slightly more active pace. In general, they are looking for companies growing at superior rates than the general marketplace, but are unwilling to pay the extremely high multiples associated with the hyper growth stocks.

Hedge Fund: Hedge Fund investors have the majority of their funds invested in some sort of market neutral strategy. Notably, the term 'hedge fund' is both a legal structure (as opposed to a mutual fund) and an investment style. Nearly every firm that uses a hedge fund or market neutral style is legally organized as a hedge fund (and thus only opens to accredited investors). Many are offshore funds that are unregistered, have no investment limitations, and are not subject to disclosure regulations. The common element is that any long position taken in a specific equity is offset by a short position in either a merger partner (risk arbitrage), an 'overvalued' member of the same sector

(long/short paired trading), a convertible bond (convertible arbitrage), a futures contract (index arbitrage) or an option contract (volatility arbitrage). Because of the idiosyncratic nature of these investors, the fundamentals of their portfolios are not indicative of their investment styles. Thomson Financial categorizes these portfolios based on its specific knowledge of the their historical investment behavior.

Income Value: Income Value investors are similar to those in the Core Value category except they are as interested in the dividend yield as they are in the low valuation ratios of the stocks they purchase. As a result, Income Value portfolios typically exhibit above average current income and low P/E ratios.

Index: Index investors generally create portfolios that are designed to match the composition of one or more of the broad-based indices such as the S&P 500, the Russell 1000/2000/3000, the Wilshire 5000, or the NASDAQ 100. Therefore, the performance and risk of the portfolio mirrors a section of the broader market. Their investment decisions are driven solely by the makeup of the index that is tracked rather than by an evaluation of the company and its business prospects. As a result, Index firms are often referred to as Passive investors. Thomson Financial categorizes these portfolios based on its specific knowledge of their historical investment behavior.

Mixed Style: Investment approach is diversified by employing various strategies simultaneously to realize short- and long-term gains.

Momentum: Momentum institutions invest in stocks whose price, earnings, or earnings estimates are advancing at a faster rate than the market or other stocks in the same sector. Momentum investors generally look for stocks experiencing upward earnings revisions or producing positive earnings surprises. Most of the investors in this category have relatively high portfolio turnover rates due to a short-term (often quarterly) focus, and therefore will liquidate positions at the slightest hint of a disappointment or deceleration in earnings. Thomson Financial categorizes these portfolios based on its knowledge of their historical investment behavior.

Sector Specific: Sector Specific investors have the majority of their assets in a single major industry category. Many times these investors are "forced" to own most if not all of the stocks in a given sector whether or not they are deemed appropriately valued. Since their portfolio exposure is linked to a single sector, their performance is usually measured against an index that is pertinent only to that industry. As such, tweaking the relative exposure to the companies that constitute a given sector will determine these firm's investment decisions.

Specialty: This category encompasses a range of styles that are not based on the fundamentals of the stocks in the portfolio relative to the overall market. Examples include investors that hold a particularly high concentration of a single stock or a very small set of stocks, or specialize in convertible securities. This category is also reserved for any institution or mutual fund that does not meet the criteria for any of the other investment styles. Thomson Financial categorizes these portfolios based on its specific knowledge of their historical investment behavior.

VC/Private Equity: Venture Capital and Private Equity investors are usually owners of public companies only when they have participated in a round of financing prior to an IPO and subsequently retained ownership after the transition from a private company to a public company. Other investors often consider positions held by venture capitalists as an "overhang" on the stock of a publicly traded company since VCs will typically dispose of their holdings of public companies during the first few years following an IPO.

Yield: Yield investors typically focus on buying companies with indicated dividend yields that are comfortably above the S&P 500 average and that are perceived to be able to continue making or increasing dividend payments over time. Investors that fall into this category tend to focus on income and safety more than on capital appreciation, and many have a dividend yield "hurdle rate" below which they will be either unlikely to consider owning a particular stock or forced to pare back a current position.

Source: http://banker.thomsonib.com/ta/help/webhelp/Ownership_Glossary.htm

References

About the PRI. (2017, December 01). Retrieved from https://www.unpri.org/pri.

ABN AMRO (2017). Exclusion List. Retrieved from https://www.abnamro.com/en/images/Documents/040_Sustainable_banking/060_Strategy/ABN_AMRO_Exclusion_list.pdf.

Aegon (2018). Aegon N.V. Responsible Investment Policy. Retrieved from https://www.aegon.com/contentassets/a11467f650ae4f7087d9bdf75ab6217e/aegon-responsible-investment-policy-exclusions-list.pdf.

Ahrens, D. (2004). Investing in vice. *St. Martin's Press, New York*.

Barberis, N., & Shleifer, A. (2003). Style investing. *Journal of financial Economics*, *68*(2), 161-199.

Barnett, M. L., & Salomon, R. M. (2006). Beyond dichotomy: The curvilinear relationship between social responsibility and financial performance. *Strategic Management Journal*, *27*(11), 1101-1122.

Berman, D., (2002). Why sin is good: tobacco, alcohol, and gaming stocks can add sizzle to your portfolio? *Money Sense*.

Blitz, D., & Fabozzi, F. J. (2017). Sin Stocks Revisited: Resolving the Sin Stock Anomaly. *Journal of Portfolio Management*, *44*(1), 105-111.

Clarke, T., & Boersma, M. (2016). Sustainable Finance? A Critical Analysis of the Regulation, Policies, Strategies, Implementation and Reporting on Sustainability in International Finance. *UNEP-Inquiry: Design of a Sustainable Financial System*.

Coval, J. D., & Moskowitz, T. J. (1999). Home bias at home: Local equity preference in domestic portfolios. *The Journal of Finance*, *54*(6), 2045-2073.

De Cleyn, S. H., & Braet, J. (2012). Do board composition and investor type influence innovativeness in SMEs?. *International Entrepreneurship and Management Journal*, *8*(3), 285-308.

Drake, T. E. (1950). *Quakers and slavery in America* (Vol. 51). Yale University Press.

Durand, R. B., Koh, S., & Tan, P. L. (2013). The price of sin in the Pacific-Basin. *Pacific-Basin Finance Journal*, *21*(1), 899-913.

Edmans, A. (2011). Does the stock market fully value intangibles? Employee satisfaction and equity prices. *Journal of Financial economics*, *101*(3), 621-640.

Elkington, J. (1997). Cannibals with forks: the triple bottom line of twenty-first century business. Capstone.

Fama, E. F., & French, K. R. (2016). Dissecting anomalies with a five-factor model. *The Review of Financial Studies*, *29*(1), 69-103.

Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, *5*(4), 210-233.

Friedman, M., & Friedman, R. (1990). *Free to choose: A personal statement*. Houghton Mifflin Harcourt.

Froot, K., & Teo, M. (2008). Style investing and institutional investors. *Journal of Financial and Quantitative Analysis*, *43*(4), 883-906.

Grant, L. (2016) From faith to fact in ESG exclusions: a behind-the-scenes analysis. Retrieved from https://www.hermes-investment.com/ukw/wp-content/uploads/sites/80/2016/11/CM155770_T4969_Global_Equities_Newsletter_Q416.pdf.

Grinblatt, M., & Keloharju, M. (2001). How distance, language, and culture influence stockholdings and trades. *The Journal of Finance*, *56*(3), 1053-1073.

Guenther, C., Johan, S., & Schweizer, D. (2018). Is the crowd sensitive to distance?—How investment decisions differ by investor type. *Small Business Economics*, *50*(2), 289-305.

Hong, H., & Kacperczyk, M. (2009). The price of sin: The effects of social norms on markets. *Journal of Financial Economics*, *93*(1), 15-36.

Humphrey, J. E., Lee, D. D., & Shen, Y. (2012). Does it cost to be sustainable?. *Journal of Corporate Finance*, 18(3), 626-639.

Iqbal, S., Hussain, N., Latif, M., & Aslam, S. (2013). Investor type and financial market anomalies: A comparison of individual, institutional and foreign investors and role of their behaviors in investing decisions. *Middle-East Journal of Scientific Research*, *17*(11), 1591-1596.

Levering, R., & Moskowitz, M. (1998). The 100 best companies to work for in America. *Fortune*, *137*(1), 84.

Nordea Bank (2018). Exclusion list. Retrieved from https://www.nordea.com/en/sustainability/sustainable-business/investments/exclusion-list/.

Norges Bank (2018). Observation and Exclusion of Companies. Retrieved from https://www.nbim.no/en/responsibility/exclusion-of-companies.

Patten, D. M. (1990). The market reaction to social responsibility disclosures: The case of the Sullivan principles signings. *Accounting, Organizations and Society*, *15*(6), 575-587.

Phansatan, S., Powell, J. G., Tanthanongsakkun, S., & Treepongkaruna, S. (2012). Investor type trading behavior and trade performance: Evidence from the Thai stock market. *Pacific-Basin Finance Journal*, *20*(1), 1-23.

Robeco (2018). Exclusion Policy Robeco. Retrieved from https://www.robeco.com/docm/docu-exclusion-policy-and-list.pdf.

Statman, M., & Glushkov, D. (2009). The wages of social responsibility. Financial Analysts Journal, 65(4), 33-46.

Sullivan, R., Martinsdale, W., Feller, E., & Bordon, A. (2015) Fiduciary Duty in the 21st Century. Retrieved from http://dx.doi.org/10.2139/ssrn.2724866.

Waxler, C. (2004). *Stocking up on sin: How to crush the market with vice-based investing*. John Wiley & Sons.

Wesley, J., & Hughes, H. M. (1912). *The use of money*. Wesleyan Methodist Union for Social Service.