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Juulia Järvinen

ESG performance in emerging markets

Evidence from the BRICS countries

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Author: Juulia Järvinen
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ABSTRACT :
This thesis studies the relationship between ESG performance and corporate financial performance of companies operating in the emerging markets by analyzing companies' stock returns compared to their ESG scores. Companies' corporate responsibility is evaluated with ESG scores, which are formed based on companies' abilities to fulfill its obligations related to the environment, social responsibility and good governance. The time period is set for 2015-2019, lasting for five years. The interest in responsible investing has been growing a lot faster in developed markets than in emerging markets, which is why there were limited amount of data available before the year 2015 for emerging markets' ESG performance. In addition to that, the impact of the global pandemic wanted to be excluded from the study, which is why the time period in this study ends in year 2019.

The theory part of this thesis includes a presentation of the basics of responsible investing, its history as well as some previous studies in the field. Sustainability and ESG matters have interested the academic world as well as investors widely during the last decade, and the trend seems to be growing constantly. Emerging markets play a significant role in the global economic growth, which is why studying ESG performance in the emerging markets is important for investors wanting to invest in the emerging markets. The relationship between companies ESG performance and financial performance has been widely studied and most of the results show a positive relationship, but the field still lacks a clear consensus. The impact of ESG in the emerging markets have not received as much attention in the academic world as ESG in developed countries. This thesis seeks to answer questions whether companies' corporate social performance affect their stock returns in emerging markets and to what extent.

The empirical part of this study includes a thorough analysis to study the relationship between companies' ESG performance and stock returns. Five major emerging market countries are selected for this study, Brazil, Russia, India, China, and South Africa. Different regression models are used to evaluate companies' performance and the different regression models are applied for different portfolios. The different portfolios are formed based on previous literature and companies' ESG scores. The regressions are performed for three different portfolios; the first portfolio includes companies with the highest ESG scores, the second portfolio companies with the lowest ESG scores and the third portfolio is formed by using the high portfolio in a long position and the low portfolio in a short position. The results of this thesis suggest that there exist possibilities for investors to receive abnormal returns by using a simple ESG investing strategy, where investor buys stocks with high ESG performance and sells stocks with low ESG performance.

KEYWORDS: environmental, social & governance (ESG), socially responsible investing (SRI), emerging markets, corporate social responsibility (CSR), ESG-rating

VAASAN YLIOPISTO
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TIIVISTELMÄ:
Tämä tutkimus tutkii kehittyvillä markkinoilla toimivien yritysten vastuullisen suorituskyvyn ja taloudellisen suorituskyvyn välistä suhdetta analysoimalla yritysten osaketuottoja suhteessa niiden ESG pisteisiin. Yritysten vastuullisuutta arvioidaan ESG pisteillä, jotka koostuvat yrityksen kyvystä suoriutua velvoitteista liittyen ympäristöön, yhteiskuntavastuuseen ja hyvään hallintotapaan. Ajanjaksoksi tähän tutkimukseen on määritelty vuodet 2015–2019, kestäen yhteensä viisi vuotta. Vastuullinen sijoittaminen on kasvattanut suosiota kehittyvillä markkinoilla hitaammin kuin kehittyneillä markkinoilla, minkä vuoksi ESG-pisteitä ei ollut saatavilla monen yrityksen osalta ennen vuotta 2015. Lisäksi tutkimuksesta haluttiin jättää pois globaalin pandemian vaikutus, minkä takia tutkimus päättyy vuoteen 2019.

Tutkimuksen teoriaosassa käydään läpi vastuullisen sijoittamisen perusteet ja historia, sekä esitellään aikaisempia tutkimuksia aiheesta. Vastuullisuus ja vastuullinen sijoittaminen ovat kiinnostaneet niin tutkijoita kuin sijoittajia laajasti viimeisien vuosikymmenien aikana. Tämä trendi on ollut kasvussa erityisesti viime vuosien aikana, ja kehitys näyttää jatkuvan samanlaisena myös tulevaisuudessa. Kehittyvät markkinat ovat merkittävässä roolissa globaalissa talouskasvussa, minkä vuoksi yritysten vastuullisen suorituskyvyn selvittäminen niillä markkinoilla on tärkeää sijoittajille, jotka haluavat sijoittaa kehittyville markkinoille. Yritysten suorituskykyä vastuullisuuden mittareilla ja sen yhteyttä yritysten taloudellisen suorituskykyyn on tutkittu laajasti. Suurin osa näistä tutkimuksista on löytänyt positiivisen yhteyden näiden kahden muuttujan välillä, mutta selvää yksimielisyyttä aiheeseen ei ole löydetty. Vastuullisuuden vaikutusta kehittyvillä markkinoilla ei ole tutkittu yhtä paljon kuin sen vaikutusta kehittyneillä markkinoilla, minkä takia tämän tutkimuksen tarkoituksena on tutkia, onko yrityksen saamilla ESG-pisteillä yhteyttä sen osaketuottoihin. Tutkimukset, joita aiheesta on tehty ovat löytäneet sekä positiivisia, negatiivisia, että neutraaleja yhteyksiä näiden välillä.

Tämän tutkimuksen empiirisessä osassa toteutetaan perusteellinen analyysi vastuullisen ja osaketuottojen suhteen arvioimiseksi. Tutkimukseen on valittu viisi kehittyvien markkinoiden suurta maata: Brasilia, Venäjä, Intia, Kiina sekä Etelä-Afrikka. Suorituskykyjen arvioimiseksi käytetään erilaisia regressiomalleja, joita käytetään eri portfolioille. Eri portfoliot muodostetaan aikaisempien tutkimuksien mukaisesti perustuen yritysten ESG pisteisiin. Regressioanalyysit toteutetaan kolmelle eri portfoliolle; ensimmäinen portfolio sisältää yritykset, joilla on korkeimmat ESG-pisteet, toinen portfolio sisältää yritykset, joilla on matalimmat ESG-pisteet, ja kolmas portfolio, joka muodostetaan ostamalla korkeat ESG-pisteet omaava portfolio ja lyhyeksi myymällä matalat ESG-pisteet omaava portfolio. Tulokset tästä tutkimuksesta osoittavat, että kehittyvillä markkinoilla sijoittajalle esiintyy mahdollisuuksia saavuttaa markkinoista poikkeavia tuloksia noudattamalla yksinkertaista ESG-sijoitusstrategia, jossa sijoittaja ostaa osakkeet, joilla on korkeat ESG pisteet, ja myy osakkeet, joilla on matalat ESG-pisteet.

AVAINSANAT: ympäristö, yhteyskuntavastuu, hyvä hallintotapa (ESG), vastuullinen sijoittaminen, kehittyvät markkinat, yhteiskuntavastuu, ESG-luokitus

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1 Introduction

ESG investing and companies ESG performance has received a lot of growing attention both among investors and in the academic world. According to Eurosif (2018) ESG stands for environmental, social and governance, and making investment decisions based on ESG values is called socially responsible investing, SRI. A literature review conducted by Daugaard (2020) states that the number of published articles in the field of ESG investing has grown rapidly especially during the last decade. In the same paper it is shown that a major part of ESG investing related articles is focused on measuring the performance of ESG investment activities compared to conventional investment activities. One area that has not received that much attention in the academic literature is ESG investing in the emerging markets. Daugaard (2020) points out that studying the performance of ESG investing in the emerging markets is important both for investors seeking to diversify portfolio risk and for lower income countries to examine and understand the impact and potential possibilities of ESG.

According to Odell & Ali (2016) the impact of different ESG related factors is more heightened when moving from developed countries to emerging markets. Issues like corruption, poverty, pollution, and child labor are often in the center of attention in many emerging market economies. They study and present reasons why and how emerging market countries are able to benefit and manage risks by focusing on ESG issues. Because of the nature of emerging markets, companies that operate there, face both enormous opportunities as well as a large number of challenges when considering ESG factors.

Where ESG investing is extremely popular and steadily growing in more developed countries, the interest in ESG issues has been much lower and there has not been so high growth of interest in the emerging markets. Odell & Ali (2016) present a reason behind this to be related for example to emerging market companies' different ownership structures, limited disclosure, and undeveloped capital markets. This is contradictory because of corrupted governances, weak human rights, and environmental issues it should be

even more important for investors investing in emerging markets companies to think about ESG issues than in developed countries.

Because of the limited amount of academic research in the field of ESG investing in emerging markets, there are different possible outcomes from studying whether companies with higher ESG score will perform be able to produce better corporate financial performance than companies with lower ESG score. In this study, the relationship is studied through stock market returns. The returns are calculated from the daily closing prices. According to Friede et al. (2015), in general, a large majority of ESG investing studies find positive relation between ESG and financial performance, and a large number of studies also do not find negative relations. Based on their thorough literature review in existing ESG research they found that ESG matters could provide outperformance opportunities especially in the emerging markets.

This study will focus on the largest economies in the emerging markets. Data is going to be collected from Thomson Reuters and the data will be analyzed by conducting a ranking and constructing portfolios between the companies based on their ESG score. Furthermore, the analysis on the performance between different ESG portfolios is going to be done with asset pricing models; the CAPM, the Fama and French (1996) three factor model and the Carhart (1997) four-factor model.

1.1 Hypothesis development and purpose of the study

The primary purpose of this study is to investigate whether companies with higher ESG score will be able to produce better stock returns than companies with lower ESG score in the emerging markets. ESG factors are closely related to companies' corporate social responsibility, CSR, activities. According to Orlitzky & Benjamin (2001), based on previous literature, companies that invest in CSR are able to reduce risk and even the cost of capital. With this in mind, and for example stated by Odell & Ali (2016) that emerging markets are in the center of global growth, the hypotheses are formed as follows:

H0 = In the emerging markets, there does not exist a positive relationship between companies' ESG performance and stock returns
H1 = In the emerging markets, there exists a positive relationship between companies' ESG performance and stock returns

Odell & Ali (2016) also suggest that by focusing on ESG factors, companies in emerging markets can achieve higher returns, opportunities to grow, and eventually lower risk. Where ESG investing has been growing constantly in developed countries, in emerging markets the growth has been a lot slower, but still a growing trend. The Global Sustainable Investment Alliance (2018) presents in their review that there have been some important developments in the field of sustainable investing in the emerging markets. For example, in 2018 the Brazilian stock exchange introduced a new concept called ''green bonds'' and in 2018 in Mexico a green finance advisory was created. Some countries have received more rapid growth in the field of ESG investing, for example during 2018 South Africa received a growth of 23 percent.

This study is meaningful in many ways, first studying ESG investing and ESG performance interests a large amount of people both in the academic world and in the investment universe. Environmental, social and governance aspects have grown to interest the world continuously over the last decade and especially the relationship between companies' ESG performance and financial performance still lacks consensus. (Daugaard, 2019.) The aim of this study is trying to offer new research in the field with a new point of view. This study contributes to the existing literature in the following ways. Still to this day, most of the existing literature focuses on developed markets (Consolandi et al. 2009; Statman 2000; Belghitar et al. 2014; Daugaard, 2019) There are also studies that focuses on a single country operating in emerging markets (Cunha & Samanez, 2013; Ortas et al. 2012; Zhang et al. 2021), but not many studies that focuses on the entire emerging markets. This study focuses on the BRICS countries, which represent a majority of emerging markets economies. Lastly, some of the few studies focusing on BRICS countries are outdated or uses different methodologies. This study uses a sample period of 5 years, from

2015-2019, which is appropriate because before the year 2015 many of the emerging market economies had very limited ESG data available, and by excluding the most recent years from this study the impact of the world pandemic is avoided from the results.

1.2 Structure of the study

This study has seven main chapters. This first chapter of the study presents an introduction to the subject of ESG investing in the emerging markets. It also provides reasons why the topic is chosen and provides insights to hypotheses development. In this first chapter a short explanation on how this study will be conducted is presented.

Next this study is moving on to literature review. It is crucial for this study to present the basics of ESG investing, as well as the history and development of ESG investing. The next chapters will also include presentations of SRI and CSR and different ESG investment strategies. There is also a chapter that focuses on challenges and possibilities of ESG investing in emerging markets. After a thorough literature review this study will move on to empirical research. This part of the study includes data presentation and methodology presentation, which will show how and where the data is collected and how it is analyzed. The chapter after that will focus on presenting the results of the empirical study. Finally, this study is going to end in conclusions.

2 Socially responsible investing

According to Renneboog et al. (2008a) socially responsible investing refers to a form of investing where investors seek to reach both financial and ethical goals. In this concept social goals refers to environmental, social and governance related factors. Usually, SRI investment strategies focus on selecting or excluding certain assets based on their ESG related factors. Renneboog, et al. (2008a) argues that when investors make investment decisions based on SRI and seek to achieve also non-financial utility, they might have less interest in financial performance of their assets when compared to conventional investors. In the same study it is also stated that there still is no consensus whether SRI provides positive, negative, or neutral results when compared to conventional investing.

Corporate social responsibility, CSR, is closely related to SRI. Where investors might follow SRI principles, companies must decide whether or not to invest in their CSR policies. The aim when investing in CSR policies is to make decisions that somehow produce positive impact to the environment, community, or people, for example attempts to reduce the amount of a company's carbon footprint. Renneboog, et al. (2008a) argue that stock markets and investors might undervalue CSR and SRI in the short run, but in the long run, companies that have ignored CSR and SRI might face lower valuation from investors.

2.1 History

Schueth (2003) states that in its current form, the first findings of SRI are from the 1960s. According to Daugaard (2020) it has been growing rapidly during the last decades and years. In his study it is stated that for example in the US assets that are considered as socially responsible grew from 6,5 trillion dollars to 68,4 trillion dollars during the years 2006-2017. Friede et al. (2015) present that over 2000 empirical studies in the field of SRI have been published since the 1970s. Renneboog, et al. (2008a) states that the growth of SRI can be explained for example by the growing interest of investors towards

ESG factors, such as environmental pollution, and growing amount of regulations in the field.

In their study (2008a) Renneboog et al. present that the first modern SRI mutual fund was called the Pax World Fund and it was founded in 1971 in the US. The fund was created to object weapon business and militarism in general and it was founded during the Vietnam war. In the 1980s investors became more aware of for example racial activities and began to protest against funds that invested in such activities. One example is South Africa where racial segregation was an enormous problem and investors demanded mutual funds to divest from South Africa, in which they were somewhat successful, because for example in California a new law amendment was founded in 1986 to divest from companies that had activities in South Africa. (Renneboog et al. 2008a.)

Renneboog et al. (2008a) point out that in the beginning the focus of SRI was mainly in the environmental and social factors, such as pollution, global warming, and human rights. Later on, the governance aspect received a growing amount of attention and factors such as corporate scandals made investors more aware also of governance activities. In the beginning of SRI, investors incorporating ESG factors in their investment decisions mainly focused on avoiding or punishing bad behavior rather than rewarding good behavior.

Wood (2010) discussed how the methodologies and discussion on the measurement of companies' CSR activities has evolved during the history of SRI. He states that the first discussion subject in the field was to specify how and to who are companies responsible for their actions. Before ESG aspects became important to companies, they were often seen as a closed object, who were only responsible for themselves, and not for example how their actions affect the environment and stakeholders. In this study it is stated that for the first time a responsibility for companies to produce social goods besides their goods for sale was first introduced in 1953 by Bowen.

The first study trying to conceptualize and make the incorporating CSR activities into companies' everyday business actions measurable was introduces by Caroll (1979). In this study corporate social responsibility is divided into four subcategories: economic, legal, ethical, and discretionary. From these four the economic responsibilities are significantly the most important one, followed in order with legal, ethical, and discretionary responsibilities. Economic responsibilities are the easiest to understand and it follows the commonly accepted point of view that companies' main objective is to create profit by selling goods and services to the society. The legal responsibilities include all the regulations and laws under which companies are expected to conduct business. According to Caroll (1979) economic and legal responsibilities comprises two thirds of the total responsibilities. The ethical responsibilities are the ones that are not included in the laws and regulations, which were and still somewhat are difficult to define what kind of activities are ethically good or bad. Discretionary responsibilities Caroll (1979) defines more as stakeholder expectations, they are activities for value creations and meeting the expectations of stakeholders.

The concept presented by Caroll (1979) became very popular in the field of measuring and conceptualizing CSR activities and many altered definitions were done based on Caroll's work. One example is done by Wood (1991), which is called the Wood's model of CSP, corporate social performance. On the left side of Wood's model, the principles of social responsibility are presented. In this model, social responsibility includes legitimacy, public responsibility and managerial discretion. After principles of social responsibility in Wood's model the process of social responsiveness is presented. That process includes environmental scanning, stakeholder management and public affairs management. Lastly on the model are outcomes and impacts of performance, which include effects on people, organizations, natural and physical environment, social systems, and institutions.

Also Wood's (1991) model became popular in the related literature and modifications and extensions about the model were presented. One of the researchers that used

Wood's model as a groundwork to her own study was Swanson (1995). She found many problems in Wood's model and proposed an own theory where decision-making processes are added to the model. Swanson (1995) presented four new categories, that were formed based on Wood's model. They are CSR macro-principles, CSR micro-principles, corporate culture, and social impacts. Swanson's model has been modified and developed by her colleagues and Swanson herself (Ortlizky & Swanson, 2002).

One of the first studies to present how to measure companies' performance on CSR is presented by Mitnick (2000). He suggests that the CSR performance can be measured by measuring the following components: the quality of companies' guidance component (including for example code of conduct), numerical hiring and retention objectives, recruitment etc. processes, outputs of for example hiring minorities, satisfaction levels and an overall aggregate measure of minority recruitment processes.

2.2 SRI and CSR

As mentioned previously in this study, concepts of CSR and SRI are closely related to each other. Sheehy (2015) states that CSR actions have impact on the ecology, society and economic system where the company acts. There is still no clear consensus on how to clearly define CSR, and different actors have different goals on how to define CSR. For example, different political philosophies, government, investor and a private business all have different agendas when defining CSR.

Lindgreen & Swaen (2010) define CSR to be an enabler for a company to meet their investors' demands on ESG issues. For a company to successfully incorporate CSR activities into their business requires communication, implementation, stakeholder engagement and appropriate measurement systems. Communicating about CSR activities is a useful tool in building corporate brand and thus stakeholder engagement when done properly. In some cases, stakeholders might become suspicious if communication is not transparent and clear. Implementation of CSR activities might be the most central and

complicated aspect. Lindgreen & Swaen (2010) state that there are existing guidelines and criteria for successful CSR implementation, but it lacks a thorough consensus in the academic world. Stakeholder engagement includes two-way communication and both formal and less formal practices. Measurement of CSR activities is the most complex aspect of CSR, and it is widely accepted that there is no one way on how to measure CSR.

One widely studied area of CSR is the relationship between CSR and financial performance. Cavaco & Crifo (2014) argue that no clear consensus has been found in the subject, but in general responsible activities and behavior towards stakeholders will produce mutual benefits and thus even better financial performance. They claim that one of the fundamental reasons behind the lack of consensus in the field is related synergies and trade-offs in the research of CSR performance and financial performance of a company. Synergies appear when mutual benefits are achieved by responsible activities with and towards employees and customers. Trade-offs can arise with responsible activities towards the surrounding environment.

2.3 SRI and ESG

Where CSR refers to a company's actions towards SRI, ESG is the criteria investors use when conducting SRI as an investment strategy. There exists a broad area of research in the field of ESG investing and different descriptions of ESG are accepted. For example, Giese et al. (2019) divide ESG investing into three main areas. They call the first one ESG integration, where the goal of an investor is to achieve better financial returns by incorporating ESG criteria into their investment decisions. Second one they call value-based investing, where the investor wants to impact a little more on issues that are close to their beliefs and norms. The last area of ESG investing Giese et al. (2019) call impact investing, where investors are ready to use money to make a difference on ESG related matters, such as pollution.

Giese et al. (2019) state in their literature review that in the academic world there has been proof of positive, negative, and neutral correlations between ESG and financial

performance. This study argues that the varying results can be because of lack of consensus in what kind of data is used, what kind of methods are used to analyze ESG data and even what kind of factors can really be included in ESG values. There also exist different ESG rating companies, which make ESG ratings all in their own way. Besides these differences, Giese et al. (2019) find that based on historical research in the area, a majority argues there to exist a positive relationship between ESG and financial performance.

2.4 ESG investment strategies

There are different ways to present ESG investment strategies. One framework is provided by State Street Global Advisors, SSGA, which is an investment management division under State Street Corporation, which is the world's third largest asset manager. This framework is written by Kumar (2016). He states that this framework is built to help prevent problems that occur from not having a clear clarity of ESG investing terminology. In this study five primary ESG investing strategies are found, and they are called exclusionary and positive screening, ESG integration, impact investing and active ownership. These strategies can be used alone or together in order to meet investor's personal goals.

Exclusionary screening is an investment strategy where the investors exclude assets from their portfolio from companies that conflict with their personal beliefs, for example the gun industry. Investors that are using this strategy are trying to impact on companies by not investing in them, but in general this strategy has the lowest straight impact on companies.

Positive screening is the opposite compared to exclusionary screening, and it is conducted by selecting assets that are performing well according to ESG criteria. There are also sub strategies under positive screening. One is called *Best in class,* which as the name suggests focuses on selecting the best performing ESG assets. ESG momentum strategy focuses on selecting assets that are improving their ESG performance the best.

Thematic investing means focusing on selecting assets that are focusing on a specific ESG issue, such as child labor for instance. Conversely to exclusionary screening, positive screening aims to reward companies usually in a specific area of ESG issues.

Next strategy that Kumar (2016) presents is called ESG integration, in which investors make investment decisions based on ESG criteria as well as traditional financial reasons. Similar ESG strategy is called impact investing, but it goes a bit further by trying to create a positive measurable impact. Last and the most aggressive and concrete strategy is called active ownership, where investors are trying to have an influence on a company's actions by participating in company's decision making and engaging with management.

2.5 Cost of SRI

As described by Blanchett (2010) socially responsible investing is an investment strategy where investor is trying to maximize financial returns while doing socially good. One important question while conducting SRI is to critically evaluate the costs of SRI. As stated in the modern portfolio theory, diversification reduces the risk of, and when investing in only socially responsible investment products investor might face a risk of loss in diversification opportunities. Blanchett (2010) states that one of the things investors need to consider while making socially responsible investment is the long-term performance, and that SRI investment may require different investment strategies than conventional investment strategies.

Chun et al. (2011) states that majority in the field of studying the relationship between corporate social and corporate financial performance has shown a positive link, but the consensus on what kind of ethical processes affect company's performance and how still remains unclear. Their study suggests that most of the literature in the field is focusing on the external stakeholders and their effects on companies' performance, which means that doing good ethically leads to good stakeholder relations and good reputation, which again eventually leads to better performance, and lower risk to for example scandals.

Chun et al. (2011) contribute to the existing literature by adding an internal point of view in studying the relationship between corporate social and corporate financial performance. They state that internal activities, including employees' engagement into companies' ethical activities should be seen as an important role when studying how those ethical activities affect companies' financial performance.

From an investor's point of view Adler & Kritzman (2008) argue that the cost of using SRI as an investment strategy is unclear for investors. They claim that investors do not realize the actual cost of SRI and therefore they might make investment decisions based on wrong reasons. The authors give an example in their study that when investors are excluding for example tobacco companies' assets from their portfolio based on social reasons, they might lose potential profits, which they could have used for example towards actions that are promoting restrictions against smoking. They state that not understanding the actual cost of SRI is the core problem and makes it difficult to truly evaluate their investment decisions, for example to decide whether it is more worth it to use an exclusionary or positive screening strategy in order to meet investors' goals. Adler & Kritzman (2008) also make a statement that when investors are using positive screening and choosing the best performing ESG assets are not actually using SRI as an investment strategy but actually just engaging in active management.

Kruger (2015) studies the relationship between corporate CSR activities and financial performance of the company. He presents that previous research in the field has shown positive, negative and no correlation at all between CSR activities and financial performance. In his conclusions he finds that because there exists a cost for companies with socially irresponsible activities, negative CSR actions result in decrease of asset value. Kruger (2015) argues that shareholder's reactions are bigger towards strongly negative CSR actions than towards strongly positive CSR actions. Nevertheless, he also finds positive correlation between good CSR activities and financial performance.

One of the aspects that is in the central when evaluating the cost of SRI is to critically decide what activities are socially responsible. Cavaco & Crifo (2014) point out that in some cases, the lack of consensus will distort the results, for example a situation when a company invests in one CSR practice and produces better financial results compared to a situation where a company invests in a wide range of CSR activities but produces less returns. They suggest that the evaluation of CSR performance should be done for a specific set of CSR practices.

3 ESG in the emerging markets

As stated earlier in this paper, studying ESG in emerging markets is still quite a small segment in the literature of responsible investing. ESG related problems and issues are much more in the center of attention when moving from developed countries to emerging countries and performance of ESG investing strategies may vary because of different market conditions and cultural aspects. Daugaard (2020) says that studying this area is going to be helpful for both investors who are analyzing whether using ESG investment strategy is profitable in the emerging markets and for the companies operating in those markets.

According to Garcia, Mendes-Da-Silva & Orsato (2017) when studying the relationship between ESG and financial performance there are a lot of differences between developed and emerging markets, but some laws apply to both of them. For example, it is commonly accepted that if companies act irresponsibly, the stakeholders lose trust in them and are less likely to continue to invest in those companies. Also acting against law may cause accusations and penalties for companies, which obviously does not lead to better financial performance due to money loss to paying fines and penalties. Garcia, et al. (2017) present that the most of the differences between developed and emerging markets are focused on institutional context, capital markets, risk profile of companies and environmental legitimacy. Institutional context refers to the fact that in emerging markets there is a limited prosecution of liability laws and dissemination of information is on a much lower level.

In developed markets capital markets are more developed and efficiently monitored by rules and laws, whereas in emerging markets the situation is almost the opposite, including weak monitoring and underdeveloped capital markets. Risk profile of companies means the fact that in emerging markets investors have only little trustworthy information about companies whereas in developed countries investors have free access to trustworthy and accurate information. Lastly, the environmental legitimacy aspect refers

to the fact that in developed countries ESG initiatives are both encouraged and even pressured whereas in emerging markets ESG investments remain at quite a low level.

3.1 Emerging markets

There are different ways to classify emerging countries and developed countries. One common way to focus on certain countries according to Garcia, Mendes-Da-Silva & Orsato (2017) is to concentrate on so-called BRICS countries, which are Brazil, Russia, India, China, and South Africa. These countries represent a major part of the emerging markets altogether and the Gross Domestic Product, GDP of the BRICS grew from three trillion USD to twelve trillion USD during the years 2000-2010.

Martins (2021) points out that emerging markets are in a central role of future economic growth. Because of the fact that they are going to have a huge effect on the total economic growth it means that emerging markets also have an impact on how the future of ESG is going to develop. Emerging markets are in charge of a big number of imports of goods and services of developed markets.

In his study Martins (2021) presents two different reasons why emerging markets have interest in investing in ESG. First, he points out that because of lower investor protection managers in emerging market companies have more possibilities to pursue ideas and projects of their own interests, such as ESG related projects. The second reason is related to the nature of emerging markets; corruption, market inefficiency, and weak rules and laws about ESG related investments.

Zou et. al. (2020) present in their study that based on information from Global Reporting Initiative, GRI, the amount of CSR related reports has increased over 50% in emerging markets during a five-year time period during 2012-2017. Global Reporting Initiative, GRI, is an independent international organization (GRI, 2021) providing widely used standards for sustainability reporting. According to Zou et. al. (2020) special indices

made for SRI are common in developed countries, but only three emerging market countries have established their own domestic SRI indices: Brazil, China and South Africa.

This study is going to focus on the BRICS countries, which all have their own features. GRI has a headquarter in Amsterdam, but also many regional hubs to ensure appropriate use of their standards around the world. Their regional hubs are located for example in Africa, Brazil, China, and Asia.

3.1.1 Corporate social responsibility in Brazil

The Brazilian regional GRI hub was founded in 2007. In 2005 The Brazilian Corporate Sustainability Index, BCSI, was founded. Ortas et. al. (2012) state that the growth of SRI related activities has been one of the highest volumes in Brazil, where a Brazilian retail SRI grew from 42 million euros to 700 million euros during only one year. The Global Sustainable Alliance (2018) states that a concept of green bonds was first introduced in 2018 in Brazil.

Griesse (2006) published an article describing the state of corporate social responsibility in Brazil. One of the central aspects that are described in the paper are still valid today. Brazil is widely divided into richer and poorer areas, and even though Brazil is advanced in technology and have a lot of natural resources, a large part of the population lives in poverty and bad conditions. Brazil is one of the largest countries in the world by area and it covers a lot of South Africa, which makes its actions affect the economy as a whole.

Griesse (2006) states that one of the biggest obstacles in improving Brazil's corporate social responsibility actions and companies' ESG scores is still the problems in its political, social, and economic institutions and the inequality the whole country suffers from.

3.1.2 Corporate social responsibility in Russia

Arrive & Feng (2018) state that the reason behind Russian companies engaging more in CSR and ESG related activities have mostly been because of authority pressure. They also state that in Russia, it is more common for companies to focus on social concerns regarding employees and customers rather than environmental issues.

Schislyaeva et. al. (2014) describe the state of corporate social responsibility in Russia in their study. They argue that according to Russian government, CSR actions are on companies own responsibility and act as a payoff for when the properties of Russian state were given to new private owners. This way of seeing the need for CSR is opposite to many other economies where the need for CSR actions originally came from the demand of customers and other stakeholders.

Other factors Schislyaeva et. al. (2014) present to have an impact on the development of CSR activities in Russia are related to how social policies are formed in the companies. Every company in Russia decide their social policies independently and based on their strategy and how much time and money they are capable to invest in activities supporting social policies. It is also common that these policies are planned and decided by the senior management and the employees have little to say to those decisions. In Russia, some of the things that are seen as most important in the field of CSR are related to charity, engaging in important social projects in Russia and the maintenance of the social infrastructure in Russia.

3.1.3 Corporate social responsibility in India

According to Arrive & Feng (2018) in India there are a lot of state-owned corporations and a federal republic government. India is significantly behind on CSR and ESG related issues, they are still trying to focus on meeting the basic needs of their citizens as well as improving girls' status in the country. India still faces a lot of problems related to labor, infrastructure, and the financial sector. There is no specific domestic sustainability index,

but the Credit Rating Information Services of India and the Investment Information and Credit Rating Agency of India have done evaluations on companies' CSR activities.

Mitra (2012) studies corporate social responsibility in India. According to the study the most focus in CSR activities in Indian companies are on developing stakeholder engagement, societal ethics, and business synergies. The problems that India face are related to weak CSR reporting, limited stakeholder participation and the lack of consensus in understanding CSR requirements.

3.1.4 Corporate social responsibility in China

Arrive & Feng (2018) state that in China the interest has been moving from only looking at economic growth to also think about the social aspect. China still faces a lot of characteristics from socialism but in 2006 People's Republic of China conducted a business law which requires companies acting in China to regularly engage in social responsibility. According to Arrive & Feng (2018) from the BRICS countries Russia is the worst in reporting CSR activities and China is in second place.

According to Feng et. al. (2021) some development can be seen in this field. In 2016 People's Bank of China and seven Chinese ministries formed a regulation called *Guidelines on building a green financial system,* which aims to form and follow a national sustainable development strategy.

3.1.5 Corporate social responsibility in South Africa

The Global Sustainable Alliance (2018) states that the amount of responsible investing grew a lot in Africa in 2018. In Southern Africa the amount was 23 percent and South Africa holds the highest growth number of sustainable investing assets. Arrive & Feng (2018) point out that South Africa has a free-market economy and CSR related activities have long been dominated by donations made by companies who wanted to have an

impact on specific issues. An important factor in setting standards for companies in South Africa is the Johannesburg Stock Exchange, JSE.

Common to other emerging market economies, South Africa also faces a lot of difficulties related to inequalities inside the country. According to Coldwell et. al. (2015) ever since the global financial crisis issues related to poverty, corruption and capitalism have received a constantly growing amount of attention in South Africa and a demand from stakeholders to make better business decisions.

3.2 Challenges and possibilities of ESG in emerging markets

As Arrive & Feng (2018) note that one of the biggest changes between developed and emerging markets that has influence on ESG activities are the different laws and policy requirements. These are due to enormous amounts of different cultural aspects as well as constitutional aspects. Some countries require more disclosure and reporting and stricter policies than others. When looking at the BRICS countries, for example South Africa and China have a lot more requirements regarding CSR disclosure policies than Russia.

Ortas et. al. (2012) list some features of emerging markets that have effect on the development of SRI and CSR. For enabling possibilities, they list for example the fast growing population of countries in emerging markets and rapidly changing environment, which could potentially be ready for changes arising from ESG related activities.

For challenging features, they point out for example the fact that at the moment developed market countries are the leaders in CSR practices in the world. The poor transparency in corporate governance, inequalities between different income and social levels and the fact that governments are often influencing a lot on companies' governance matters are common features of emerging markets. Also, the weak capital markets, lack of ethics management and difficulties for companies to receive long-term financing have an impact on ESG related activities in emerging markets.

According to Ortas et. al. (2012) indexes devoted to SRI are relatively new in emerging markets and thus have not been studied as much as in developed countries. For example, the S&P ESG India Index was founded in 2008, the CSI ECPI ESG China 40 index in 2010 and the ECPI Ethical Emerging Markets Tradable Equity Index in 2006. Zou et. al. (2020) point out also an important fact that investors in emerging markets are also a lot different than investors in developed countries. These investors often lack experience and knowledge about investing and face a lack of trust towards provided information about investment recommendations for example.

3.3 ESG & financial performance measurement

Measuring the ESG performance of a company is often done using different ESG ratings data providers. A study conducted by Dorfleitner et al. (2015) evaluates three commonly used ESG rating data providers, from which one is used in this study. The three databases they use are the Thomson Reuters Datastream (used in this study), the KLD ratings provided by MSCI ESG STATS and the ESG data set from Bloomberg Sustainability. ESG ratings are extremely important both for the investors when making sustainable investment decisions, and for the companies to attract responsible investors as well as get information about the state of their CSR activities. Dorfleitner et al. (2015) state that ESG ratings become especially important when investors are following a positive screening strategy, where investors are selecting companies who are performing well in the terms of ESG performance. The study also mentions that ESG ratings act as a motivation for companies, in a situation where a company receives a low ESG score, they are motivated to change their actions towards better in order to receive better ESG scores, and eventually attract more responsible investors and receive better reputation.

One problem in the ESG ratings is the fact that the data providers do not have any specific guidelines on how they need to compute the scores and a large amount of people including managers, investors and academic researchers use that data. The findings of the study conducted by Dorfleitner et al. (2015) suggest few results within the ratings of the

different data providers. Firstly, data by Bloomberg showed generally higher ESG scores than data by Thomson Reuters, which the authors state is related to the valuation methodology used, and that companies that have better ESG scores generally provide more non-financial information. Secondly, their study finds that in general, larger companies usually have chances to have better ESG scores due to their better reporting activities. Thirdly, they found that there are some significant variations between the definition of CSR activities and in the overall convergence of ESG ratings. The conclusion is that even though the different data providers use similar concepts when conducting the ESG ratings, they compose and weight the different ESG components differently.

Besides deciding on what ESG rating data provider to use, an investor or researcher has to decide how to evaluate the relationship between the ESG performance and financial performance. Peloza (2009) conducted a study to investigate how the relationship can be studied and what could be the best methodologies. One of the commonly used metrics to evaluate the performance of ESG investments is to use end state metrics, which Peloza (2009) categorizes into three approaches; market approach, that include metrics such as share price, internal accounting approach, that include metrics such as ROA, return on assets and perceptual approach, that include qualitative analysis of a company's performance.

3.3.1 Measuring ESG in emerging markets

According to Zou et al. (2020) a common way to investigate whether ESG investing is profitable or not in emerging markets is to analyze returns on SRI indexes, which are relatively new in emerging countries. The key point when analyzing the performance of ESG investing is to investigate how a company's CSR related activities are affecting their corporate financial performance. Zou et al. (2020) state that many of the studies focused on studying the performance of ESG in the emerging markets have analyzed the corporate social and corporate financial performance relationship by using measures that are created by the companies themselves operating in these markets. This may produce faulty results and should rather be done with more objective measures, which is why

this study uses commonly known ESG score data provider and regression models to analyze the relationship between corporate social and corporate financial performance. Earlier in this chapter, there was a presentation of a previous research studying the impact of using different ESG rating providers.

4 Previous research

As stated before in this paper, the relationship between companies' ESG characteristics and financial performance has been widely studied and received a lot of attention both in the academic world and among investors. However, a major part of these studies is focused on developed markets, where ESG and CSR related activities are seen as standard practices.

Besides the fact that the relationship between ESG and financial performance has been studied a lot, the consensus between these studies remains unclear. For example, Giese et. al. (2019) state that there exist meta studies, where over 1000 different research papers on the field have been analyzed and summarized together, but no clear agreement about the results exists. Results vary from positive, negative, and non-existing correlation between a company's ESG score and their financial performance. Next, some of the previous studies on the field are presented.

4.1 Studies on ESG performance that find positive relationship between corporate social and corporate financial performance

Albertini (2013) conducted a meta-analysis review on existing studies in the field. Their results suggest that most of the studies included in their review show a positive relationship between ESG performance and financial performance. Their study contributed to the existing literature by taking into account a long sample period and a large sample size. They analyzed 52 studies for 35 years. The author states that in the study was found that for example the study's duration, regional differences and the performance measures have a great influence on the results. The study also suggests that the relationship has been positive over a long period of time, besides the fact that ESG matters have interested people significantly more during the last decade.

Kempf & Osthoff (2007) performed a study in which they use an ESG investing strategy, where they buy stock with good ESG scores and sell stocks with bad ESG scores. They

conduct the analysis by implementing different ESG screening strategies. The results in this study suggest that portfolios with the highest ESG stocks received the highest returns. Kempf & Osthoff (2007) also state that the portfolio performance is the best when the used investment strategy is the *best-in-class* screening strategy, where investors seek to choose stocks that have the best ESG scores. The methodology used to measure the performance is the Carhart (1997) four-factor model. The analysis is done for stocks in years 1992-2004. Only situation where investors are not able to receive better abnormal returns is when they use only a negative screening strategy.

van Beurden & Gössling (2008) conducted a thorough literature review using existing studies as data and performed a qualitative data analysis to find whether there exists a positive, negative or neutral relationship between companies' social performance and financial performance. Their study included studies from years 1990-2008. The results in this study show that most of the studies, almost 70%, show a positive relationship between social and financial performance. What is most interesting in their findings is that only about 5% of all the studies show a negative relationship. Rest on the studies show neither a significant positive nor a significant negative relationship. van Beurden & Gössling (2008) add that those studied that showed negative relationship used limited data and thus can be stated that most of the studies show a positive or non-negative relationship between social and financial performance of a company.

Aktas et al. (2010) provide a different approach in studying ESG performance and financial performance. They use mergers and acquisitions to study whether SRI actions produce or decrease value for companies. The authors form a hypothesis that suggest that SRI actions add value in M&A activities, and the results of their study agree with the hypothesis. They also suggest that an acquirer is rewarded when making socially responsible investment decisions.

Ahmed et al. (2010) analyzed the performance of companies who apply ESG criteria into their business by examining the returns of the companies who were mentioned in a

magazine, which listed top 100 socially responsible companies in years 1998-2003. The results of this study find a significant positive relationship with SRI performance and financial performance. They also conducted an additional analysis, which results show in more detail that companies who for example have a low employee turnover and higher job growth rate produced positive returns.

4.2 Studies on ESG performance that find negative or no relationship between corporate social and corporate financial performance

Renneboog et al. (2008b) studied the price of SRI from mutual funds perspective. Their study consists of mutual funds across the world. This study contributes to existing literature for example by taking the entire world into consideration while most of the existing studies focus on a single country or market area. The results of this study are contradictory to a majority of existing studies; Renneboog et al. (2008b) find that SRI funds in the UK, US, majority of Continental European and Asia-Pacific countries show negative relationship between ESG and financial performance. Besides that most of the funds underperform the market, a large part of rest of the markets do not show positive relationships, so bases on this study it can be argued that SRI investing produces either negative or non-positive results.

A study conducted by Pedersen et al. (2020) purpose a theory about an ESG-efficient frontier, which tries to develop a theory to explain how ESG-based investment decisions affect investors' portfolio choice. The results of this study suggest that more and more investors seek to make ethical investment decisions without compromising possible future returns. Pedersen et al. (2020) acknowledge this and with their study they are trying to provide a framework useful for investors to be able to critically evaluate the costs and benefits of ESG investing. Other result in their study show that the best portfolio performance is achieved when incorporating the G proxy into investment strategies. When using the overall ESG proxy, a small risk of a negative effect to portfolio performance is suffered, and thus this study suggests that not in every situation does higher ESG scores predict higher returns.

Revelli & Viviani (2014) conducted a meta-analysis with 85 studies to examine whether including ESG criteria into investment decisions will result in better financial returns. The main findings in their study are that they find no clear positive or negative relationship between companies' ESG performance and financial performance. The contribution of their study was to provide a thorough meta-analysis of recent studies on the field and find and consensus on the on-going debate on whether using ESG as an investment strategy is profitable or not. After the analysis, Revelli & Viviani (2014) find all three relationships in the studies: positive, negative, and neutral, and thus they argue that incorporating ESG criteria into investment decisions will neither lead to better profits nor sacrifice possible future returns.

Kreander et al. (2005) study the performance of SRI funds in Europe. They use a matched pair analysis to find whether SRI funds produce better returns than conventional funds. This study focuses on 60 funds from years 1995-2001 and the performance is measured with Sharpe, Treynor and Jensen ratios. The results of this study suggest that there is no significant difference between the SRI and their benchmark fund performance when all the risk adjusted performance measures were applied. When looking at the results from only by Jensen measure a negative relationship between the fund's ESG and financial performance is found.

4.3 ESG performance in the emerging markets

According to Giese et. al. (2019) the main reasons behind the varying results in the field of ESG and financial performance are related to methodologies and datasets used. They state that it is common in these studies to solely focus on analyzing historical data and thus receiving incorrect results. There are also different ways to use companies' ESG data and there exist different ESG score providers. In developed countries, there is more consensus on ESG scores than in emerging markets where ESG scoring is still a relatively new area of analyzing companies.

Auer (2014) lists reasons for and against the relationship between corporate social and corporate financial performance. Firstly, he suggests that companies engaging in environmental activities and good corporate governance will decrease the risk of receiving fines or lawsuits and eventually lead to satisfied and loyal employees and other stakeholders. As reasons why engaging in ESG activities would not produce better financial performance he lists the fact that when companies are investing in ESG and CSR they are facing a competitive disadvantage compared to companies that do not invest in these activities. One commonly known point of view is that investors seeking to receive better financial profits by using ESG as a criterion might face a lack of diversification advantages because they might have to exclude some companies out of their portfolios.

Companies' CSR activities and their relationship to company risk and profitability have been studied in history. For example, Bassen et. al. (2006) prove in their study that engaging in CSR activities can reduce risks and uncertainty and eventually the cost of capital. The risk aspect comes from the fact that investors need companies to own a good practice to be able to manage risks, in order to reduce risk taking from investors point of view. From a company's point of view, acting responsibly reduces the risks of reputational loss and thus the risk of losing investors. Bassen et. al. (2006) reminds that CSR activities are not only for mitigating risk but also a chance to create extra value and even possible financial profits. They prove that risk has a connection to cost of capital by explaining that cost of capital consists of cost of equity and cost of debt, and if a risk increases so does either the cost of equity or cost of debt. When making an investment the investor expects the return to rise over the cost of capital and thus if a company is able to reduce its risks, such as those related to CSR, it results in reduced cost of capital.

Ortas et. al. (2012) conducted a study investigating the performance of Brazilian Corporate Sustainability Index, the BSCI. In this study the BCSI is evaluated by comparing it to its benchmark, the Bovespa Index. It is stated that the only difference between these two indexes is that BSCI is using a social and environmental screening process. This study came to a conclusion that the BSCI would be less risky and present as good results as the benchmark index, which is not commonly accepted. The widely accepted portfolio

theory states that lower risk should result in lower returns. Ortas et. al. (2012) presented some reasons that could explain these findings.

First, Ortas et. al. (2012) mention that at the time of the study Brazil was one of the fastest-growing economies in emerging markets. They state this is due to growth in population and increase in living standards. These again are connected to increasing use of resources which leads to growing interest in natural resources and more broadly environmental issues, which is in line with the fact that the BSCI performed better or as good as the benchmark portfolio. The next reason they present is that companies that are listed in the sustainability index face more requirements towards sustainable business actions and thus face the opportunity to receive better results. This is especially significant in the emerging markets where sustainability issues are heightened.

The next reason is related to the governance aspect. In Brazil, as well as in a lot of emerging market countries, the role of the country's government is very important and has a lot of influence on companies' actions. This often leads to limited authority of boards and weak financial reporting with no standards or requirements. Again, the companies listed in the BSCI face more pressure and are required to be more transparent, which potentially leads to more stakeholder satisfaction and eventually better results. The governance aspect is more significant in the emerging markets because even though these issues still exist in the developed markets, they are a lot smaller, and most companies are already following a lot of regulations and laws.

According to Ortas et. al. (2012) one of the most significant factors in emerging markets complicating the improvement of ESG investing is the restricted capital markets. In emerging markets, companies face challenges when trying to find long-term financing, which makes it difficult for companies to plan their businesses forward and achieve growth. Once again, the companies that are listed in the sustainability index might be able to attract some of the operators offering long-term financing. This issue receives more attention in the emerging markets because of income and social inequalities compared to developed markets.

The findings of the study conducted by Ortas et. al. (2012) are interesting and important, first of all because they somehow challenge the modern portfolio theory with the results and provide important information for the companies, investors and other stakeholders. In Brazil specifically this may cause a movement that companies that were not previously listed in the BSCI want to do it now on, because of the better results obtained. This would lead to more companies engaging in ESG issues, which would eventually improve the life of Brazilian citizens and have a positive impact on environmental and societal issues.

As for example Ortas et. al. (2012) mention, many of the studies focusing on ESG investing are facing challenges especially when trying to define what investment objects really are sustainable. There are different information providers and different markets decide to make these classifications differently. In this Brazilian case, the authors states that the BSCI is an actually sustainable index, because companies listed in it are required to present proofs and documents regularly about their actions.

Another study conducted in the Brazilian stock market investigating the performance of ESG investing was made by Cunha & Samanez (2013). Their findings are almost the opposite compared to previously mentioned study. Their focus was on the Brazilian Corporate Sustainability Index, ISE. They find that companies listed in the corporate sustainability index did not produce better or even sufficient returns when compared to its benchmark portfolio. They list some reasons besides those mentioned earlier in this paper; firstly, the authors believe that emerging markets are not yet interested enough about sustainability issues when making investment decisions, and the fact that Brazil does not have effective regulation that would make it mandatory to incorporate ESG activities into their business. Even though Cunha & Samanez (2013) found that the sustainability index did not outperform its benchmark, they found that companies listed in the sustainability index managed to achieve a low diversifiable risk and increase liquidity.

Feng et. al. (2021) focus on studying ESG investing in the Chinese market. They state that in developed markets it is common for institutional investors to use ESG criteria when

evaluating investments and constructing portfolios. In emerging markets, the situation is still not even closely the same even though ESG investing has become more popular during the last years. Feng et. al. (2021) describe the use of ESG criteria in emerging markets to still remain in its initial phase.

In their study Feng et. al. (2021) focus on investigating the relationship between Chinese companies' ESG scores and a risk of unusually negative drop on stock prices. They state that the higher the ESG score, the better the chances are to produce profitable development in the future. The results of this study are that there exists a significant negative relationship between ESG score and the possibility of stock prices to crash. This study was conducted in China, but the authors mention the results to be relevant also in other emerging countries because of the same level or even lower level of transparency and regulations.

5 Empirical research

This chapter of the study introduces the empirical research done. It starts with an introduction of data, its sources, and methods of collection. After the data has been presented this chapter will move on to explaining methodologies used to analyze the data. The following chapter will then present and analyze the results obtained from this chapter.

The research question in this study is whether companies with higher ESG scores will achieve higher corporate financial performance than companies with lower ESG scores in the emerging markets. The empirical part of the study will give answers to hypotheses presented in the first chapter of this study. The null hypothesis was that companies with higher ESG score will perform better financially and the other hypothesis that companies with higher ESG score will not perform better financially than companies with lower ESG score in the emerging markets.

The analysis is done in BRICS countries, which represent a major part of emerging markets and thus provide a meaningful result. Empirical research is applied for a dataset collected from BRICS countries during a five-year time period, from years 2015-2019. The chosen methodology is based on previous research, and it follows partly the structures done by Halbritter & Dorfleitner (2015) and Kempf & Osthoff (2007). Also, for example Ortas et. al. (2012) state that it has been common in the history of studying the relationship between ESG and financial performance to use traditional or extended multifactor market models and simple econometric techniques. The Carhart four-factor model is used in many similar studies in the field of investigating the relationship between company's ESG performance and financial performance (Lee et al. 2013; Eccles et al. 2014; Derwall et al. 2005)

The performance analysis is done by using three different models, the CAPM model, the Fama and French three-factor model (Fama-French, 1996), and the Carhart four-factor model (Carhart, 1997), as is also done in the Kempf & Osthoff (2007) study. According to

them, using these basic asset pricing models is a common and appropriate way to study the relationship between ESG performance and financial performance. Their study also adds the negative and positive screening strategies to their evaluation, but in this study the high and low portfolios are formed based on the ESG scores in general. The studies mentioned here also add transaction costs and cut-offs in the analyzation, but this study excludes those factors. The examination is done by constructing ESG portfolios from the data set. The portfolio construction follows many similar studies in the field, but especially the study conducted by Halbritter & Dorfleitner (2015).

5.1 Data

This chapter includes the presentation of the data collection process as well as presents descriptive statistics. The sample period used is 1.1.2015 - 31.12.2019, lasting for 5 years. The data for emerging markets' stocks' closing prices are retrieved from Refinitiv Datastream. Also, explanatory variables are needed to conduct the regression. Data for those is collected from Kenneth R. French database.

5.1.1 Emerging market companies' ESG score

This study examines ESG performance in the BRICS countries, Brazil, Russia, India, China and South Africa. The companies chosen to be a part of the analysis were determined by selecting the 50 largest companies who had ESG data available in each of the countries. This selection follows for example a study conducted by Arrive & Feng (2018), who studied CSR disclosure in the BRICS countries. Following the study conducted by Halbritter & Dorfleitner (2015) this study will have four different ESG measurements; the overall ESG score and separate scores for the proxies E, S and G. Thomson Reuters offers several different scores for measuring ESG principles and below is introduced what scores will be used in this study. The time period for these observations is five years, from 1.1.2015 to 31.12.2019. ESG scores are presented as annual averages.

For the ESG overall score this study will use the Thomson Reuters ESG combined score. It is defined as the overall company score that is calculated based on information that is reported about environmental, social, and corporate governance aspects. The overall ESG score includes ten different measures under E, S and G. Under the environmental aspect there are scores calculated from resource use, emissions, and innovation. Governance score is formed by scores related to management, shareholders, and CSR strategy. Social score includes workforce, human rights, community, and product responsibility. The below chart presents how the ten different scores are weighted to get the overall Thomson Reuters ESG score.

Pillar	**Category**	**Indicators in rating**	**Weights**
Environmental	Resource use	20	11 %
	Emissions	22	12 %
	Innovation	19	11 %
Social	Workforce	29	16 %
	Human Rights	8	4,50 %
	Community	14	8 %
	Product Responsibility	12	7 %
Governance	Management	34	19 %
	Shareholders	12	7 %
	CSR strategy	8	4,50 %
Total		178	100 %

Table 1 Thomson Reuters ESG Scores Structure (Refinitiv, 2021)

For the separate environmental, E, score this study will combine two scores from Thomson Reuters: the emissions score and the environmental innovation score. Emission score is calculated from a company's actions and commitment towards the target of reducing environmental emission. Environmental innovation score is also based on how

much a company is able to reduce environmental emissions and costs but also how that effects on the possibilities to create new market opportunities, for example by new innovation on environmental processes and technologies.

For the separate social, S, score this study will also combine two different scores from Thomson Reuters: the human rights score and the community score. As per its name, the human rights score comes from how well a company is acting towards ensuring and respecting the fundamental human rights. The community score measures how committed a company is towards its community, including protecting public health and citizens.

The score for the governance, G aspect, this study will use the Thomson Reuters Management score and shareholders' score. Management score is defined to measure companies' actions on corporate governance principles. Shareholder's score presents how well and equally a company is acting towards its shareholders.

5.1.2 Emerging market companies' financial performance

For measuring the financial performance of the emerging markets companies, the same 50 companies presented in the previous chapter per each market studied is considered. The time period is the same, 1.1.2015 - 31.12.2019, lasting for five years. The data is collected from Refinitiv Datastream and for performance measure the daily closing prices are used. Altogether 250 companies and their daily closing prices are considered. In total 326 000 observations are used to calculate average financial performance.

From the daily closing prices daily returns are calculated. Daily returns are converted into daily excess returns by subtracting the risk-free rate from the daily return value. Excess returns act as the dependent variable in this study.

5.1.3 Descriptive statistics

This part of the thesis will present some descriptive statistic of the data used. This part is a summarization and presents some central characteristics of the data set. Table 2 below presents the descriptive statistics of the ESG scores. Descriptive statistics are shown for the different high and low portfolios for each of the ESG proxies; the ESG combined, and E, S and G proxies separately.

Portfolio	Min	Max	Mean	Median	St. Dev.	Kurtosis	Skewness
High - ESG Combined	42,580	92,410	70,500	71,260	9,271	0,268	-0,354
Low - ESG Combined	0,650	56,240	22,248	22,940	9,418	0,073	-0,142
High - E	5,150	99,650	69,386	69,595	17,435	-0,310	-0,377
Low - E	0,000	52,550	8,536	0,520	11,756	1,150	1,370
High - S	39,020	99,550	82,868	87,960	14,341	0,005	-0,971
Low - S	0,000	68,060	9,772	7,260	11,112	3,643	1,496
High - G	16,180	99,610	77,505	81,415	17,862	0,563	-0,966
Low - G	0,150	85,380	21,376	16,690	16,887	0,492	0,959

Table 2 Descriptive statistics: ESG scores

From the table the minimum and maximum values for the ESG scores can be seen. The highest value is received in the high portfolio based on environmental score. Other scores that are close to the highest value are from the high portfolio based on social score and high portfolio based on governance score. The lowest values can be found in the low portfolios based on environmental and social scores. Also values for mean and median can be seen in the table for each of the portfolios.

The values for kurtosis are relatively small and close to each other, except for the low portfolio based on social score. The values for skewness are both positive and negative,

which indicates that there exists some skewness to the left and some skewness to the right, or that both negative and positive values exist in the sample.

5.2 Methodology

This part of the study will introduce the methodology used to investigate the relationship between companies' ESG performance and stock returns. The chosen methodology follows partly the studies conducted by Halbritter & Dorfleitner (2015) and Kempf & Osthoff (2007). Also, a study conducted by Statman & Glushkov (2009) uses similar methods than this study. They construct equally weighted ESG portfolios and measure the performance with CAPM model as well as three-factor and four-factor models. Using regressions models as a method is common in the field of ESG research. Derwall et al. (2005) studied the impact of ESG on the returns of US companies and used the Carhart four-factor model, with result showing that companies with high ESG score performed significantly better. Lee et al. (2013) also used the Carhart four-factor model to study the impact of ESG in the US. Their study also shows positive correlation with ESG scores and financial performance.

As mentioned earlier the econometric models used are the CAPM model, Fama and French three-factor model and the Carhart four factor model. This chapter also includes a presentation of the portfolio formation as well as econometric variables used in the regression models.

5.2.1 Capital Asset Pricing Model - CAPM

The capital asset pricing model, CAPM, was developed by four researchers in the early 1960s. The developers were William Sharpe (1964), Jack Treynor (1962), John Lintner (1965) and Jan Mossin (1966). CAPM was the first model to explain how a risk should affect an investment's expected return. CAPM is a pricing model where expected return

of an asset is calculated with risk-free rate and risk premium of an asset. The formula of CAPM is as follows:

$$E(r) = r_f + \beta(r_m - r_f), \tag{1}$$

where $E(r)$ is assets expected return, r_f the risk-free rate, β the asset beta and r_m markets expected return. The formula describes expected return and risk and how they are connected. The beta of the asset describes the part of the risk that is impossible to get rid of by diversifying. The $r_m - r_f$ component of the formula is describing the risk premium in the market.

According to Perold (2004) CAPM is a useful model and offers a good way to investigate asset pricing and investor behavior. Nevertheless, the model has many weaknesses because it makes a lot of assumptions that are not true in the real world. First, the model assumes that all investors have identical portfolios, which is not true in the real world. Also, the same risk-free rate is assumed.

5.2.2 Fama and French three-factor model

Fama and French (1996) expanded the CAPM model to make it more useful. According to them, the three-factor model is able to capture so-called CAPM anomalies and thus make it have more explanatory power. The Fama and French three factor model can explain returns a lot better than CAPM model where only one component is used to explain returns.

Fama and French (1996) explain that the development of the three-factor model got started because of the realization that CAPM lacks many characteristics that affect average returns. They list for example company size, earnings/price ratio, cash flow/price ratio, long-term past returns and past sales growth. In order to take these into consideration they formed the three-factor model, which formula is:

$$R_i - R_f = \alpha_i + b_i(R_M - R_f) + s_i SMB_t + h_i HML_t + \varepsilon_i, \quad (2)$$

where R_i presents the portfolio return, R_f the risk-free rate and the component $R_i - R_f$ is the excess portfolio return. Next component in the formula, α_i, is the abnormal return and b_i, s_i and h_i the factor coefficients. Market portfolio excess return is presented with $R_M - R_f$. SMB_t refers to size factor and HML_t to value factor. SMB, or small minus big is the difference between the return of a small stock portfolio and big stock portfolio. HML, or high minus low, is the difference between a high-book-to-market stock portfolio and a low-book-to-market stock portfolio. In other words the three factors in the model are excess returns on market, size and book-to-market values of the firms. Fama and French (2016) state that the model is based on the fact that it is common for smaller value stocks to perform better than larger growth stocks.

5.2.3 Carhart four-factor model

The Fama and French factor model is one of the most used asset pricing models in the field of finance and thus it has been altered and widely studied. One example of an extension of the Fama and French three-factor model is the Carhart four-factor model. Carhart four-factor model is trying to better explain stock return behavior and thus Carhart (1997) adds a fourth factor to the equation, the momentum factor. The four-factor model is as follows:

$$R_i - R_f = \alpha_i + b_i(R_M - R_f) + s_i SMB_t + h_i HML_t + p_i WML_t + \varepsilon_i, \quad (3)$$

where other variables are the same as in the Fama and French three-factor model and WML, winner minus loser, factor presents the momentum factor, explaining the abnormal returns.

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5.2.4 Portfolio construction

In order to be able to evaluate the performance of ESG investment strategy, individual stocks need to be constructed into portfolios. According to Halbritter & Dorfleitner (2015) the literature that studies the relationship between corporate social and corporate financial performance often suggests a so-called *ESG portfolio method*, where companies in the study are divided into different portfolios based on their ESG scores. They state that it is accurate and appropriate for example because it allows the studies to use larger panel data sets and easily form single time-series dimensions, which again makes it possible and appropriate to use basic asset pricing models to investigate the relationship between companies' ESG scores and corporate financial performance (Halbritter & Dorfleitner, 2015).

Following the study conducted by Halbritter & Dorfleitner (2015) this study forms two portfolios for each of the different ESG dimension studied, which are the ESG combined score and scores for the proxies E, S and G individually. The 20% best performing companies based on ESG combined score, E score, S score and G score form the *high* portfolio and the 20% worst performing companies form the *low* portfolio. Besides the high and low portfolios, a difference portfolio is formed, where this study uses the high portfolio in a long position and the low portfolio in a short position. Altogether twelve different portfolios are formed, and the regression models presented previously are applied to every portfolio presented here.

Conducting the high-low investment strategy presented previously is common in the related literature (Derwall et al. 2005; Lee et al. 2013; Eccles et al. 2014). Halbritter & Dorfleitner (2015) present the ESG portfolio method, which according to them usually includes the high-low strategy, where a difference portfolio is formed by buying the high portfolio and short selling the low portfolio.

5.2.5 Econometric variables

Previous chapters introduced the econometric models used in this study. This chapter will shortly introduce the econometric variables needed to form the models. The dependent variable in this study is the excess return, R_e, of the companies in different ESG portfolios. Excess return is calculated as the return over the risk-free rate. The risk-free rate is the one-month U.S. treasury bill yield and it is retrieved from the Kenneth R. French (2022) database. The one-month U.S. treasury bill yield is commonly used as a risk-free rate in the academic literature.

Data for explanatory variables is collected from Kenneth R. French (2022) database. Kenneth R. French database offers proxies for different markets and countries. This study uses factor values of international markets, and the values are presented as U.S. dollars. Next, the formation of the different explanatory variables is presented. The variables used in this study are the size factor (SMB), value factor (HML) and momentum factor (WML). The size and value factors are constructed by sorting the stocks into two market caps, with big stocks being in the top 90% of market cap and small stocks those in the bottom 10%.

The function of the size factor is to explain the returns of a company that are associated with the size of the company. The value for the proxy SMB, small minus big, is the average return on small stock portfolios minus the average return on big stock portfolio. The value for SMB is retrieved from the Kenneth R. French (2022) database, and it is formed as below.

$$SMB = \frac{1}{3}(Small\ Value + Small\ Neutral + Small\ Growth) - \frac{1}{3}(Big\ Value + Big\ Neutral + Big\ Growth) \quad (4)$$

The value factor shows the spread in returns of a company with high book-to-market value and a company with a low book-to-market value. The value for the proxy HML, high minus low, is the average return on value portfolios minus the average return on

growth portfolio. From the Kenneth R. French (2022) database, the formula for computing the HML factor is as below.

$$HML = \frac{1}{2}(Small\ Value + Big\ Value) - \frac{1}{2}(Small\ Growth + Big\ Growth) \qquad (5)$$

The last factor used in this study is the momentum factor and it is presented as a difference between the returns of a one-year winner company and one-year loser company. One-year winner is the company with the highest returns over the previous 12 months and one-year loser is the company with the lowest returns over the last 12 months. Value for WML is also retrieved from the Kenneth R. French (2022) database, and it is formed as below.

$$WML = \frac{1}{2}(Small\ High + Big\ High) - \frac{1}{2}(Small\ Low + Big\ Low) \qquad (6)$$

6 Empirical analysis and results

This chapter includes empirical analysis and results from data presented in the previous chapter. This chapter includes presentations of results from the different regression models, the CAPM, the Fama and French three-factor model and the Carhart four factor model. The empirical analysis was done first for the three different portfolios based on their ESG combined score and later on for portfolios formed based on their separate scores for E, S and G. The three portfolios formed are the high portfolio, including the 20% best performing companies, the low portfolio, including 20% worst performing companies, and lastly the difference portfolio, marked as high-low in the result tables.

6.1 Results from the CAPM

The result presentation begins with the results from the CAPM. In this study the one-month U.S. Treasury bill yield is used as a risk-free rate. The monthly yield is retrieved from the Kenneth R. French database presented earlier. The alphas in each regression results are annualized for better presentation, and it is done similarly in similar studies, for example by Halbritter and Dorfleitner (2015). The CAPM regression was done first for the three portfolios formed based on their ESG combined score and later based on their E, S and G scores individually. Significance levels are presented as stars next to numbers in all of the tables presenting results. Three stars illustrates significance at 1% level, two stars illustrates significance at 5% level, and one star illustrates significance at 10% level. T-ratios can be seen in tables below the values in brackets. Also values for R2 and standard errors are reported in the tables. Regression results from the CAPM can be seen from tables 3-7 below.

Portfolio	Alpha	MKT	R2	Standard Error
High	**0,203****	**1,384*****	**0,254**	**3,606**
	[2,028]	*[9,498]*		
Low	**0,058**	**1,560*****	**0,250**	**4,142**
	[0,506]	*[9,318]*		
High - Low	**0,145**	**-0,176**	**0,267**	**4,596**
	[1,135]	*-[0,948]*		

Table 3 Results from CAPM: ESG Combined score

Table 3 presents results from CAPM for the three different portfolios formed based on their ESG combines score. All the regression results are visible for the high, low and high-low portfolios. First of all, the high portfolio including the 20% best performing companies shows a statistically significant positive alpha for the sample period, whilst the low portfolio and high-low portfolio show smaller positive alpha, but not statistically significant. This result complies with previous literature, which suggests a positive link between companies' ESG performance and financial performance.

The values for betas from the CAPM are statistically significant at 1% level for the high and low portfolio, but not for the high-low portfolio. Smaller value for beta implicates a lower systematic risk, which in this study is true for companies with higher ESG scores. This result is similar to study conducted by Halbritter and Dorfleitner (2015). The high-low portfolio receives a small negative value for beta, which is also similar to Halbritter and Dorfleitner (2015) study. These results are based only on CAPM, and results from the Fama and French three-factor model and Carhart four-factor model are presented in the following chapters.

Portfolio	Alpha	MKT	R2	Standard Error
High	**0,114**	**1,259*** **	**0,287**	**2,88**
	[1,43]	*[10,806]*		
Low	**0,173**	**1,804** **	**0,229**	**5,260**
	[1,190]	*[8,486]*		
High - Low	**-0,059**	**-0,545*** **	**0,778**	**4,779**
	-[0,449]	*-[2,822]*		

Table 4 Results from CAPM: Environmental score

Portfolio	Alpha	MKT	R2	Standard Error
High	**0,256*** **	**1,409*** **	**0,232**	**4,049**
	[2,278]	*[8,614]*		
Low	**-0,016**	**1,122*** **	**0,213**	**3,531**
	-[0,162]	*[7,860]*		
High - Low	**0,272** **	**0,288**	**0,406**	**4,859**
	[2,017]	*[1,466]*		

Table 5 Results from CAPM: Social score

Portfolio	Alpha	MKT	R2	Standard Error
High	**0,157* **	**1,247*** **	**0,253**	**3,264**
	[1,731]	*[9,447]*		
Low	**0,098**	**1,197*** **	**0,319**	**2,438**
	[1,443]	*[12,147]*		
High - Low	**0,059**	**0,049**	**0,122**	**2,788**
	[0,765]	*[0,439]*		

Table 6 Results from CAPM: Governance score

Tables 4-6 present results from CAPM for portfolios formed based on their individual E, S and G scores. Again, the regression results are presented for the high, low and the high-low portfolios. Here can be stated that there exist differences between the E, S and G regarding the alphas of the portfolios. Altogether only three values out of nine are statistically significant, but even besides that there can be seen differences. The highest value for alpha is 0,256 and it is significant at 1% level, and it is received by the high portfolio based on social score, which implies that companies showing the best performance regarding their social score perform the best financially.

Regarding the environmental score, none of the values for alphas are statistically significant and there exists little difference between the values. For the high and low portfolios, the values for alphas are small positive and for the high-low portfolio a small negative value. For the governance score the alpha is the highest for the high portfolio, which shows a value of 0,157 at 10% significance level.

For the values of betas, nearly all show statistically significant positive values. Regarding the environmental score, the highest beta is received by the low portfolio, which implies that companies with lower environmental scores are more exposed to systematic risk. On the contrary, when looking at the social score, the low portfolio received a lower value of beta, which implies that companies with lower social scores are less exposed to systematic risk. Similar results can be seen when looking at the governance scores. In both of the cases the lowest beta is received by the difference portfolio, but the values are not significant.

All of the results presented so far are from the CAPM model. In the next chapter the results from the Fama and French three-factor model are presented in a similar way than in this chapter. Finally, after the Fama and French three-factor model there is chapter presenting the results from the Carhart four-factor model.

6.2 Results from Fama and French three-factor model

This chapter introduces the results from the Fama and French three-factor model. The same one-month U.S. Treasury bill yield is used as a risk-free rate and the monthly yield is retrieved from the Kenneth R. French database presented earlier. The Fama and French three-factor regression was done first for the three portfolios formed based on their ESG combined score and later based on their E, S and G scores individually. The results are presented for the high, low and high-low portfolios. Similar to previous chapter, the starts in the tables present the significance levels and the values in the brackets present the t-ratios. Regression results from the Fama and French three-factor model can be seen from tables 7-10 below.

Portfolio	Alpha	MKT	SMB	HML	R2	Standard Error
High	**0,207****	**1,586*****	**0,938*****	**0,512***	**0,271**	**3,592**
	[2,079]	*[9,952]*	*[2,914]*	*[1,871]*		
Low	**0,060**	**1,794*****	**1,106*****	**0,377**	**0,265**	**4,123**
	[0,524]	*[9,790]*	*[2,990]*	*[1,200]*		
High - Low	**0,147**	**-0,208**	**-0,168**	**0,135**	**0,304**	**4,599**
	[1,153]	*-[1,017]*	*-[0,408]*	*[0,384]*		

Table 7 Results from FF3: ESG Combined score

Table 7 presents results from the Fama and French three-factor model for portfolios that are formed based on ESG combined scores. Similar to results from the CAPM, the best value for alpha is received by the high portfolio, including the 20% best performing companies. This result is in line with the majority of related literature, that suggests a positive relationship between companies' ESG scores and financial performance. The high portfolio receives an alpha value of 0,207, that is significant at 5% level. Neither the low nor

the high-low portfolio show significant values for alpha, and the values are also lower compared to the high portfolio.

Regarding the ESG combined score, the high-low portfolio receives the lowest values for betas, but none of them are statistically significant. The difference is still meaningful compared to high and low portfolios. When comparing the high and low portfolio in terms of betas, the values are lower in each beta for the high portfolio. This result implies that companies with higher ESG scores are less exposed to systematic risks, which is in line with the related literature, and for example a study conducted by Halbritter and Dorfleitner (2015).

Portfolio	Alpha	MKT	SMB	HML	R2	Standard Error
High	**0,118**	**1,477*** **	**1,021*** **	**0,474** **	**0,311**	**2,861**
	[1,481]	*[11,634]*	*[3,985]*	*[2,176]*		
Low	**0,176**	**2,159*** **	**1,687*** **	**0,537**	**0,251**	**5,234**
	[1,211]	*[9,298]*	*[3,598]*	*[1,346]*		
High - Low	**-0,058**	**-0,682*** **	**-0,665**	**-0,062**	**0,0891**	**4,778**
	-[0,440]	*-[3,217]*	*-[1,554]*	*-[0,171]*		

Table 8 Results from FF3: Environmental score

Portfolio	Alpha	MKT	SMB	HML	R2	Standard Error
High	**0,257****	**1,683*****	**1,307*****	**0,358**	**0,254**	**4,030**
	[2,297]	*[9,418]*	*[3,621]*	*[1,166]*		
Low	**-0,013**	**1,314*****	**0,902*****	**0,404**	**0,230**	**3,519**
	-[0,132]	*[8,416]*	*[2,859]*	*[1,507]*		
High - Low	**0,270****	**0,370***	**0,406**	**-0,046**	**0,482**	**4,861**
	[1,999]	*[1,714]*	*[0,901]*	*-[0,124]*		

Table 9 Results from FF3: Social score

Portfolio	Alpha	MKT	SMB	HML	R2	Standard Error
High	**0,162***	**1,465*****	**1,013*****	**0,584****	**0,277**	**3,245**
	[1,785]	*[10,178]*	*[3,482]*	*[2,364]*		
Low	**0,098**	**1,385*****	**0,898*****	**0,241**	**0,339**	**2,422**
	[1,461]	*[12,888]*	*[4,137]*	*[1,306]*		
High - Low	**0,064**	**0,080**	**0,115**	**0,343**	**0,484**	**2,787**
	[0,824]	*[0,648]*	*[0,460]*	*[1,617]*		

Table 10 Results from FF3: Governance score

Tables 8-10 present the results from the Fama and French three-factor model for portfolios based on E, S and G scores individually. The results are presented for the high, low and the high-low portfolios. Similar to results from the CAPM model, the values for alphas differ between the E, S and G scores. First, when looking at the environmental score,

the highest value for alpha is received by the low portfolio, which is inconsistent with previous results in this study and also with the related literature. The values are not far from each other neither are they statistically significant. On the contrary to results from the environmental score, the social and governance score shows the highest values for alphas for the high portfolios. The high portfolio for the social score receives an alpha value of 0,257 and is significant at 5% level. The high portfolio for the governance score receives an alpha value of 0,162 and is significant at 10% level. As stated, these results comply with the existing literature and Halbritter and Dorfleitner's (2015) study.

Regarding the values for betas from the Fama and French three-factor models there exists similarities to results from the CAPM. What is consistent is that for all the scores, the high-low portfolio receives the lowest value of beta. When comparing only high and low portfolios there is differences between the results from different scores. Environmental score shows lower values for all the betas in the high portfolio, which could imply that companies with higher environmental scores can better comply with systematic risk. For social score, the market factor has lower beta in low portfolio and the size factor has lower beta in high portfolio. Betas for the value factor are not significant nor are far away from each other. Based on governance score results show lower values for betas for the low portfolio, which implies that companies with lower governance score might be able to better comply with systematic risk.

6.3 Results from Carhart four-factor model

This is the last chapter of the empirical analysis and results part of this study, and it finally introduces the results from the Carhart four-factor model. The same one-month U.S. Treasury bill yield is used as a risk-free rate and the monthly yield is retrieved from the Kenneth R. French database presented earlier. The Carhart four-factor regression was done first for the three portfolios formed based on their ESG combined score and later based on their E, S and G scores individually. Similar to CAPM and Fama and French three-factor model, the regression results are presented for the high, low and high-low portfolios separately. Also, in these results significance levels and t-ratios are presented

similarly as in previous chapters. Regression results from the Carhart four factor model can be seen from tables 11-14 below.

Portfolio	Alpha	MKT	SMB	HML	WML	R2	Standard Error
High	**0,207****	**1,592*****	**0,941*****	**0,540**	**0,033**	**0,271**	**3,592**
	[2,075]	*[9,652]*	*[2,914]*	*[1,579]*	*[0,137]*		
Low	**0,057**	**1,857*****	**1,147*****	**0,686***	**0,368**	**0,267**	**4,128**
	[0,499]	*[9,802]*	*[3,090]*	*[1,746]*	*[1,310]*		
High - Low	**0,149**	**-0,265**	**-0,206**	**-0,146**	**-0,334**	**0,425**	**4,599**
	[1,173]	*-[1,257]*	*-[0,497]*	*-[0,333]*	*-[1,069]*		

Table 11 Results from Carhart 4-factor: ESG Combined score

Table 11 presents results from the Carhart 4-factor model for portfolios formed based on their ESG combined score. Results from the Carhart 4-factor model also show similarities regarding the alphas of the portfolios. The high portfolio receives the highest value of alpha, 0,207 and is significant at 5% level. This result is consistent throughout the study and also with other related literature. It also allows this study to accept the first hypothesis, which expected ESG performance to positively correlate with the financial performance of a company.

Also, for the values of beta Carhart four-factor model shows similar results than previously presented in this study. The lowest value of beta is received by the high-low portfolio, but the value is not significant. Between the high and low portfolios, the value of beta for the high portfolio is lower than for the low portfolio, which could imply lower exposure to systematic risk for companies with higher ESG scores. This result applies for all of the betas calculated from the Carhart four-factor model.

Portfolio	Alpha	MKT	SMB	HML	WML	R2	Standard Error
High	**0,115**	**1,536*** **	**1,060*** **	**0,761*** **	**0,342* **	**0,315**	**2,860**
	[1,448]	*[11,706]*	*[4,122]*	*[2,796]*	*[1,757]*		
Low	**0,172**	**2,253*** **	**1,747*** **	**0,989*** **	**0,534**	**0,255**	**5,231**
	[1,182]	*[9,382]*	*[3,715]*	*[1,988]*	*[1,518]*		
High - Low	**-0,057**	**-0,716*** **	**-0,688**	**-0,229**	**-0,198**	**0,098**	**4,779**
	-[0,428]	*-[3,265]*	*-[1,560]*	*-[0,503]*	*-[0,611]*		

Table 12 Results from Carhart 4-factor: Environmental score

Portfolio	Alpha	MKT	SMB	HML	WML	R2	Standard Error
High	**0,254** **	**1,737*** **	**1,342*** **	**0,616**	**0,308**	**0,256**	**4,029**
	[2,275]	*[9,393]*	*[3,704]*	*[1,601]*	*[1,125]*		
Low	**-0,127**	**1,310*** **	**0,899*** **	**0,385**	**-0,023**	**0,230**	**3,521**
	-[0,130]	*[8,108]*	*[2,840]*	*[1,149]*	*-[0,096]*		
High - Low	**0,267** **	**0,427* **	**0,443**	**0,232**	**0,331**	**0,455**	**4,861**
	[1,980]	*[1,913]*	*[1,013]*	*[0,501]*	*[1,002]*		

Table 13 Results from Carhart 4-factor: Social score

Portfolio	Alpha	MKT	SMB	HML	WML	R2	Standard Error
High	**0,158***	**1,549*** **	**1,067*** **	**0,991*** **	**0,485** **	**0,283**	**3,240**
	[1,758]	*[10,417]*	*[3,662]*	*[3,216]*	*[2,204]*		
Low	**0,095**	**1,464*** **	**0,949*** **	**0,621*** **	**0,454*** **	**0,346**	**2,416**
	[1,412]	*[13,197]*	*[4,366]*	*[2,703]*	*[2,762]*		
High - Low	**0,063**	**0,086**	**0,118**	**0,370**	**0,032**	**0,486**	**2,788**
	[0,820]	*[0,669]*	*[0,472]*	*[1,394]*	*[0,167]*		

Table 14 Results from Carhart 4-factor: Governance score

Finally, tables 11-14 show the results from the Carhart four-factor model for the different portfolios that are formed based on the individual E, S and G scores. These results show that for each E, S and G scores the results are somewhat different. For environmental score, the highest value of alpha is received by the low portfolio. For social score the high-low portfolio receives the highest value of alpha, and for governance score, the highest value of alpha is received by the high portfolio. From these results, the social and governance score shows statistically significant results, governance score at 10% level and social score at 5% level. For social score, the high portfolio receives a value of 0,254 and the high-low portfolio only a little higher value, 0,267. The result that is the most against the previous results presented is the environmental score that shows the highest value of alpha for the low portfolio. That result is however not statistically significant, which is why is more appropriate to focus on the results from the social and governance score. Those results are in line with previous findings in this study, as well as with the related literature.

The values for betas show results that differ within the different E, S and G scores, which is similar to other findings in this study, and also with the study conducted by Halbritter and Dorfleitner (2015). Majority of the beta values are statistically significant. The

environmental score shows the lowest value of beta in the high-low portfolio, but some of the results are not statistically significant. For social score, the results of betas vary the most and there is no clear consensus within the results. For governance score it could be argued that the low portfolio shows constantly lower beta values, if statistically insignificant values are not considered.

To conclude this chapter, it can be stated that in general, the high portfolios received the highest values for alphas. That means that the companies with the highest ESG scores will perform better financially. These results are more significant in some cases presented in this chapter, and the results also vary little between different ESG scores; the ESG combined score, and the E, S and G scores separately.

7 Discussion and conclusions

This is the last chapter of the study and will present some conclusions and discussion. The objective of this study was to examine the relationship between ESG performance and stock returns of companies operating in emerging markets. The study focused on 250 different companies in the BRICS countries, more specifically 50 per each of the countries in the study. The time period was five years, due to lack of ESG data from earlier years and the fact that the impact of COVID-19 wanted to be excluded from the study.

This study started with a presentation to the subject by explaining the basics of responsible investing and ESG performance, as well as the special characteristics of an emerging market. Before the empirical part of this study a thorough literature review was presented with some of the important studies conducted in the field of ESG performance.

The ESG scores for each of the companies was retrieved from the Refinitiv database and the ESG scores used were presented as annual averages. The data for measuring the financial performance was also retrieved from the Refinitiv database and daily closing prices were used to calculate daily returns. Other data needed in conducting the regressions was retrieved from the Kenneth R. French database. The portfolio construction followed the study conducted by Halbritter and Dorfleitner (2015), and altogether three different portfolios were formed for each regression. The portfolios were called the high portfolio, the low portfolio, and the high-low portfolio. The high portfolio included 20% of the companies that performed the best regarding ESG performance, and the low portfolio included 20% of the companies that performed the worst regarding ESG performance. The high-low portfolio was constructed by keeping the high portfolio in long position and the low portfolio in short position. As Halbritter and Dorfleitner (2015) state, so called ESG portfolio method is the most common way to investigate the relationship between companies ESG and financial performance.

The relationship between ESG performance and stock market returns were analyzed by asset pricing models, as is done in many of the similar studies in the field. Constructing

ESG portfolios allows the application of these asset pricing models and the performance were analyzed with three different regression models: the CAPM, the Fama and French three-factor model and the Carhart four-factor model.

Most of the research in the field of studying the relationship between ESG performance and financial performance has found a positive link between the two, and in general, this study agrees with those results. As presented in the results chapter of this thesis, in most of the cases, the highest alpha was found in the high portfolio. This is especially true for the ESG combined score, as well as for the social and governance score. In many of the cases, the environmental score failed to agree with these results, and it could be argued that environmental performance of a company do not play as important role in the emerging markets as do other dimensions of ESG performance.

Companies operating in emerging markets are far less advanced in ESG activities, which can for example be seen from the fact, that there were very limited data available before the year 2015. Also factors like poverty, pollution and corruption play a much more bigger role in the emerging markets than in developed markets, which have effect on the results.

These results of this study are useful for both the companies operating in emerging markets as well as investors, and especially investors who make investment decisions based on ESG performance. The interest in SRI has been growing constantly during the last decade and especially during the last years. The trend seems to be continuing to keep growing, and more and more information about the performance of ESG is needed in the field. Emerging markets play a crucial role in the development of the global economy and the interest of investing in emerging market companies have started to interest investors.

7.1 Ideas for future research

The time period in this study is only five years, due the limited data availability on ESG scores and the fact that the impact of COVID-19 was excluded in this study. Future research could try to make the time period longer, and for example study the impact of global pandemic to the subject. Also, this study only used ESG ratings from one data provider, Refinitiv, and it could be useful to make similar analyzations with data from different providers and compare the results. Other ideas for future research could be to study the different ESG investment strategies in emerging markets.

The focus and interest on ESG matters have been growing constantly over the last decade and trend seems to keep continuing, so it would be beneficial to conduct this study again after for example a 5-year time period, in order to see how this subject has evolved. Also, a study investigating how the performance of ESG has evolved in emerging markets would be interesting. This study focused on the BRICS countries, but future research could take even wider sample size. Also, this study picked the companies solely based on the size, and an idea for future research could be to study specific industries, or for example exclude some industries from the study.

This study suggests that there exists a possibility for an investor to receive abnormal returns in a stock market by following the simple ESG investment strategy, which should not be possible in terms of efficient market hypothesis, which is why research to study what is the reason behind the temporary possibility to beat the market arises from would be beneficial.

7.2 Limitations to the study

Since emerging markets are not as advanced in ESG matters as developed markets, not all data is available. Some of the BRICS countries did not have as much data on ESG as some countries and that might have an effect on the final results. Also, even though this study focuses on the largest companies in BRICS countries, some companies had to be

eliminated due to a lack in ESG data. Especially in Russia, a limited amount of ESG data were available and thus a number of companies had to be eliminated from Russia in order to analyze their ESG performance. The fact that from some countries 50 largest companies are used and from some countries many of the largest companies had to be eliminated inevitably have some influence on the final results.

Other significant factor in the emerging markets is the for example the undeveloped and limited capital markets. Some of the data used was constricted and one must critically evaluate the trustworthy of the data provided. Also, problems related to for example different time zones and different currencies may have an effect on the results. The chosen method for analyzing ESG performance in the emerging markets may not be the best to capture the complex nature of the capital markets and company cultures, and an idea for future research could also be to find a more suitable method.

As mentioned in the previous chapter, this study uses only one ESG score data provider, which may have influence on the results. Refinitiv is a known ESG data provider, and it is used in many studies in the field, but there also exists other commonly known and used data providers. As for example proved by Halbritter and Dorfleitner (2015), there exists significant differences between the different ESG rating data providers.

This study does not take transaction costs nor different cut-offs into consideration when conducting the regression models. Also, the portfolios are constructed only equally weighted, and for future research a comparison between different weighting practices could be appropriate. The measures to evaluate the corporate financial performance are limited to daily closing prices in the stock market, and other measures that would measure the corporate financial performance more widely are left out from this study.

The results also show somehow poor values for some of the betas and especially for the multiple R values and standard error values. The poor values for R2 means that the sample, the independent variable, does not explain very good of the dependent variable.

One way to try to solve this problem is to more critically evaluate the data used, because it is not normal that the used data does not correlate with the market well.

To conclude this study, there exists a possibility for an investor to increase the performance of their portfolio by following a simple high-low ESG investing strategy, where an investor buys the stocks with the highest ESG scores and short sells the stocks with the lowest ESG scores. This implication is true for the ESG combined score as well as social and governance score. When investigating the environmental score, this study fails to show positive correlation between the environmental and financial performance. The results presented in this study also suggest that past ratings of companies' ESG performance are valuable for investors. They help investors to conduct a simple ESG investing strategy and receive the possibility to achieve abnormal returns for their investments.

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