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Activity of Global and Responsible Equity Funds

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ABSTRACT :

Besides all traditional investment products and investment themes, responsible investing has rapidly grown one of the talked-about topics of investing. The increasing interest towards responsible investing has resulted that several mutual funds that advertise themselves for instance, a climate, sustainability, or environment fund have appeared in the markets. However, several studies have found that all mutual funds do not do what they promise in their brochures, and several funds are revealed to be closet indexers. That means that fund does not invest actively but following the benchmark indexes. Furthermore, previous results regarding the performance of actively managed funds and responsible funds have varied. Since the popularity of responsible investing has been rapid it is important to examine that are the funds truly actively managed and how these funds perform.

The purpose of this thesis is to examine how active global and responsible equity funds truly are in terms of Active Share. Active Share is a measurement for active portfolio management, and it represents the share of portfolio holdings that differ from the benchmark holdings. The sample consists of 10 different funds that are examined during the period of 31.12.2018 – 30.06.2020. All of the studied funds are considered to be responsible, and these funds invest globally. Besides the Active Share, this thesis uses tracking error that represents the volatility of the difference between a portfolio return and its benchmark index return. This two measurements are used together to create a comprehensive picture of active management. Furthermore, this thesis examines the performance of funds by using total returns and risk-adjusted returns to find are funds able to generate excess returns. Furthermore, this thesis examines the performance of the funds during the COVID-19 crisis. Previous studies have found that there are closet indexers on the markets, actively managed funds underperform against the benchmarks and that there should not be a reason to pay for active management.

The results of this thesis regarding activity in terms of Active Share and tracking error suggest that all global and responsible funds are truly active, do what they promise and there are not closet indexers in the sample. Furthermore, this study finds that 40 % of studied funds were able to generate excess returns during the studied period, suggesting that in certain situations there may be a reason for pay active management. The result of this thesis supports the prior findings that a fund with the higher sustainability rating from Morningstar tends to perform better than fund with the low rating during the crisis. Basing on the results, the high Active Share does not always lead to better performance suggesting, that the investor should not choose the fund just because of a high Active Share.

KEYWORDS : Active Share, responsibility, closet indexing, mutual fund, active management, passive management

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TIIVISTELMÄ:

Perinteisten sijoitustuotteiden sekä teemojen rinnalle on viime vuosina noussut vastuullinen sijoittaminen, joka on kasvanut nopeasti yhdeksi puhutuimmista aiheista sijoittamiseen liittyen. Kasvanut kiinnostus aiheita kohtaan on aiheuttanut sen, että markkinoille on ilmestynyt lukuisia sijoitusrahastoja, jotka mainostavat itseään esimerkiksi ilmasto-, kestävyys- tai ympäristörahastoina. Useat tutkimukset ovat kuitenkin osoittaneet, että yleisesti kaikki sijoitusrahasto eivät toimikkaan niin kuin esitteissään lupaavat ja useat rahastot ovat paljastuneet kaappi-indeksioijiksi. Tällä termillä tarkoitetaan sitä, että rahasto ei sijoitakaan aktiivisesti vaan seuraa vertailuindeksiään. Lisäksi aiempien tutkimusten tulokset aktiivisten rahastojen suorituskykyyn liittyen ovat vaihdelleet. Koska vastuullisen sijoittamisen suosio on kasvanut nopeasti on tärkeää tutkia näitä rahastoja ja selvittää toimivatko ne aidosti aktiivisesti ja kuinka nämä rahastot menestyvät.

Tämän tutkielman tarkoituksena on selvittää, kuinka aktiivisia ovat globaalit sekä vastuulliset rahastot aktiivisuus (Active Share) – mittarin mukaan. Active Share on aktiivisen salkunhoidon mittari, joka kertoo kuinka suuresti portfolion omistukset eroavat vertailuindeksiin verrattuna. Tutkielman otos sisältää 10 rahastoa, joita tutkitaan aikavälillä 31.12.2018 – 30.06.2020. Kaikkia tutkittuja rahastoja voidaan pitää vastuullisina ja ne sijoittavat maailmanlaajuisesti. Active Share mittarin ohella tässä tutkielmassa käytetään aktiivista riskiä (tracking error), jotta rahastojen aktiivisuudesta saadaan mahdollisimman kattava . Tracking error mittaa kuinka paljon rahaston tuotot eroavat vertailuindeksiin tuotoista. Lisäksi tässä tutkielmassa selvitetään rahastojen suorituskykyä tutkimalla rahastojen kokonaistuottoja sekä riski-korjattuja tuottoja ja tutkitaan pystyvätkö tutkielman rahastot saavuttamaan ylituottoja. Tutkielma pyrkii myös selvittämään kuina tutkitut rahastot selviävät korona kriisin aikana. Aiempien tutkimusten perusteella markkinoilla esiintyy kaappi-indeksointia ja aktiiviset rahastot häviävät tutkimuksien mukaan vertailuindekseilleen. Lisäksi tutkimuksien mukaan aktiivisesta salkunhoidosta ei olisi syytä maksaa.

Tutkielman tulokset Active Sharen ja tracking errorin osalta osoittavat, että kaikki tutkitut globaalit sekä vastuulliset rahastot ovat erittäin aktiivisia ja ne tekevät mitä lupaavatkin. Lisäksi tutkielmassa ei löydetty yhtään kaappi-indeksointia harjoittavaa rahastoa. Tulosten mukaan 40 % tutkituista rahastoista pystyi saavuttamaan ylituottoa tutkimusperiodin aikana. Tämän tuloksen myötä tietyissä tilanteissa voisi olla perusteltua maksaa aktiivisesta salkunhoidosta. Tämän tutkielman tulokset tukevat aiempia löydöksiä, joiden mukaan rahastot, jotka ovat saaneet korkeamman kestävyys arvosanan Morningstarilta menestyvät paremmin kuin heikomman arvosanan saaneet rahastot kriisin aikana. Lisäksi tutkielman tuloksien perusteella, sijoittajan ei kannata valita rahastoa ainoastaan korkean Active Share luvun perusteella, sillä korkea Active Share ei aina johda parempaan tuottoon.

AVAINSANAT: Active Share, vastuullisuus, kaappi-indeksointi, sijoitusrahasto, aktiivinen salkunhoito, passiivinen salkunhoito

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1 Introduction

The popularity of investing is rising. According to Lounasmeri from Pörssiäätiö (2021) there are more individual stock owners in Finland than ever and according to Finlands Bank (2021) the Finnish mutual funds are holding more investments in December 2020 than ever before. Furthermore, for instance, Tabb state in Dow Jones Institutional News (Osipovich, 2020) that in the United States stock trading by individuals is at the highest level for the last ten years.

Beside of all traditionally investment options and products such as stocks and mutual funds, several funds which advertise themselves for instance as an Environmental, Sustainable, Governance (ESG) or a Climate - fund have arrived in the markets. These responsible funds usually follow the different methods of responsible investing. Funds, for instance, incorporate ESG – issues in their investment processes or exclude some industries. According to Cambridge Institute for Sustainability Leadership (2021), many terms are used to emphasize the differences in responsible investment approach and forms such as socially responsible investment, impact investment, and sustainable investment.

In recent years, responsible investing has become one of the hottest and most talked about topics in the financial world. According to Hale (2017) In 2006 portfolios that use different approaches of sustainable investing have assets under management 3.8 trillion and according to the Global Sustainable Investment Alliance (GSIA) and The Forum for Sustainable and Responsible Investment (US SIF) at the beginning of 2018 investments in global sustainability reached a total of 30.7 trillion dollars globally. The growth has been rapid. Furthermore, for instance, in U.S the growth in assets under management using sustainable investing strategies increase 42 % between 2018 and 2020 and the total amount is 17.1 trillion dollars at the start of 2020. This amount covers 33 % of the total U.S assets under professional management. (GSIA, 2018; US SIF, 2020).

The other investing theme which is facing exponential growth is the passive investment options such as low-cost (even free) index funds and Exchange Traded Funds. According to Sushko & Turner (2018) assets in passive funds have increased rapidly in recent years and are now representing a significant portion of the global investment fund universe. In June 2017 approximately 20 % (8 trillion dollars) of all investment fund assets were managed by passive funds. Passive or index mutual funds which are seen as a traditional passive portfolio product, have grown rapidly in the last ten years. Besides these passive funds the growth rate of ETFs has been even faster and in June 2017 ETFs portion of all passive funds' assets exceeds 40 %.

Since there are a considerable amount of inexpensive investment options available for investors it is justifiable to ask is there a ground for pay active management. Do these responsible funds do what they promise and are they actually active funds? Since basically the activity and the higher fees only differentiate them from the passive options. If the funds do not do what they promise, is there any reason for investing those funds since there are passive options available?

The question about activity leads to closet indexing which according to European Securities and Markets Authority (ESMA) (2016) mean the practice where fund manager claim that fund is managed actively but in reality fund is following its benchmark index. This may harm investors since the fund does not do what they promise in their documents and investors are typically paying higher fees when comparing to passive management.

There have been several studies and research (Cremers & Petäjjistö, 2009; Morningstar, 2016; ESMA, 2016) finding that several funds advertise themselves as actively managed, but funds are revealed to be closet indexers. Since the responsible investing and these responsible funds are a quite new topic in investing there has been just one study (Chen & Scholtens, 2018) that examines the activity of responsible funds. Since the results of

that study suggest that there is a closet indexers among the responsible funds it is important to study this topic further.

1.1 Purpose of the study

The purpose of this thesis is to examine how active are 10 equity funds which invest globally and are considered to be responsible. Funds are considered to responsible if they advertise themselves as ESG, Climate, or Sustainable, etc. fund, incorporate responsibility methods in their investment processes, or have received three or more sustainability globes from Morningstar. To study this activity, the primary measurement in this thesis is Active Share, a measurement for active management introduced by Cremers and Petäjistö (2009).

The concept of Active Share was invented and introduced by Cremers and Petäjistö (2009). Active Share is a measurement of active portfolio management and it represents the share of portfolio holdings that differ from the benchmark index holdings. The idea of Active Share is to quantify active management by comparing the holdings of a mutual fund with the holdings of its benchmark index. Besides Active Share, this thesis uses tracking error which represents the volatility of the difference between a portfolio return and its benchmark index return. Tracking error is a reasonable proxy for factor timing and Active Share for stock selection and these measurements together illustrate a more comprehensive picture of active management. (Cremers & Petäjistö, 2009.)

According to Antti Petäjistö in Kauppalehti (2021), in large markets portfolio manager should not pick any stocks which cannot generate excess returns. In U.S markets portfolios Active Share should be over 80 % when investing in large companies and over 90 % when investing in smaller companies. When markets are smaller, such as in Finland, it is more acceptable to have a lower Active Share since the market index is being emphasized by a couple of large companies.

As Petäjistö mentioned in Kauppalehti (2021), the Active Share should be high when markets are large. However, in 2016 study made by Morningstar revealed that approximately 20 percent of all Europe - equity funds were closet – index funds. Since the European market are not small and indexes are not being as emphasized by a couple of large companies it can be inferred that Active Shares are not as high as they should be although the markets are large. In addition, Chen & Scholtens (2018) find out in their study that approximately 10 % of funds considered to be responsible revealed to be closet index funds. These results are in line with the results by Cremers and Petäjistö (2009) and Petäjistö (2013) who find that closet indexer account the approximately one-third of all mutual fund assets in the U.S market.

Since global and responsible equity funds can practically invest anywhere around the globe the markets are large Active Share of studied funds should be high. However, as study from Morningstar (Möttölä, 2016) revealed large markets and opportunities do not guarantee large Active Share, and as Chen and Scholtens (2018) observe there are closet indexers among responsible funds too. That is why it is important to examine how active are these global and responsible equity funds truly are.

All before mentioned lead to research questions (RQ) of this thesis:

RQ1: How active are responsible and global equity funds?

Since the markets are large and the fund's benchmark index is large, it can be expected that the Active Shares of these studied funds should be high. However, if results show that there are closet indexers it means that investors are paying for something that they can possibly do themselves by investing in passive investment products. Furthermore, if there are closet indexers in the sample, those funds do not do what they promise in their Key Investor Information Documents (KIID) for instance. According to Lehtinen from Kauppalehti (2021), that kind of action can result in sanctions to the fund management

company. For instance, in 2020 Norwegian finance company DNB has to pay approximately 35-million-euro compensation to customers since customers were paying for active management but funds were following the index.

Since it is expected that global and responsible funds receive high Active Shares, the next question is that can they generate excess returns since investors are paying for outperforming. This is research question number two in this thesis.

RQ2: Can global and responsible equity funds generate excess returns?

Since actively managed funds charge different types of fees from investors it is important to examine that are these funds able to outperform the benchmark and generate excess returns. If there are funds that can outperform, then there is a justifiable reason to pay for active management.

The academic discussion between active and passive investing has always been vivacious and several studies have shown that passive funds outperform the active ones (Malkiel, 1995; Gruber, 1996; Carhart, 1997; Wermers, 2000). However, according, Gallagher, Harman, Schmidt & Warren (2017) the average global equity manager outperforms their benchmark by 1,2 % to 1,4 % per annum before fees and according to authors this finding support giving consideration to active management in global equity markets at least for the institutional investor. Results are in line with Shukla & Singh (1997) who find that U.S based global equity funds are superior performers when comparing to the global benchmark.

Furthermore, the studies regarding responsible investing and its ability to generating excess returns have been mixed. Some studies for instance Chen & Scholtens 2018 have found that responsible investing does not generate excess returns when it is compared to conventional investing. However, studies from Hamilton, Hoje & Statman (1993) or Schröder (2004) neither found that responsible investing is causing lower returns. In

addition, Kempf & Osthoff's (2007) results suggest that past socially responsible investing (SRI) ratings are valuable information for investors and by using a simple long–short trading strategy it is possible to generate high abnormal returns.

Basing on previous studies it is possible that global and responsible funds can generate excess returns. However, if these funds fail to outperform their benchmarks there should not be any reasons to invest actively managed funds and pay for active management since there are cheap and easy index funds and ETF options available.

Furthermore, during studied period all of studied funds and the benchmark generate only negative returns between 31.12.2019 – 30.06.2020 and the world met a completely new threat when the COVID-19 crisis appeared. According to Somerla from Finanssiala (2020), in February and March 2020, the corona virus spread to Europe and in the United States causing an extensive precautions and the corona crisis caused exceptionally large declines in stock markets. For instance, according to Mazur, Dang & Vega (2021), Dow Jones Industrial Average (DJIA) plunged roughly 26 % (6 400 points) in barely four trading days (March 9, 12, 16, 23) in March 2020.

However, this unusual situation provides an opportunity to examine how these global and responsible funds are performing during this type of crisis and are these funds able to survive better in crisis for instance against the benchmark. This steers to research question number three:

RQ 3: Can active and responsible fund outperform during the crisis?

This research question is driven by findings from several studies. According to Moskowitz (2000) and Kosowski (2006) active mutual funds have outperformed their conventional benchmarks during times of recession. Furthermore, Nofsinger & Varma (2014) and Becchetti, Ciciretti, Dalò & Herzel (2015) find that socially responsible equity funds outperformed conventional funds during crisis time. Since the sample of this thesis consists of

both active and responsible funds it is interesting topic to study further since this thesis can combine and examine the performance of both active funds and responsible funds together.

Whether the funds revealed to be out- or underperforming there is a place to examine is there a connection between the performance and Active Share of the fund. This leads to research question number four:

RQ4: Do funds with the highest Active Share outperform their benchmarks?

This thesis examines whether the fund with the highest Active Share can outperform its benchmark. This research question is based on the study of Cremers and Petäjistö (2009) where they find that Active Share has predicting power meaning that funds with the highest Active Share outperform their benchmarks both before and after expenses and funds with the lowest Active Share underperform after expenses.

1.2 Contribution

According, Chen, and Scholtens (2018), there has been a gap in the literature of attention to active responsible investing. Chen & Scholtens (2018) study the level of active management in responsible funds by using tracking error and R^2 of regression. This thesis tries to expand the literature regarding active management of responsible funds by using Active Share beside tracking error since according to Cremers and Petäjistö (2009) these measurements together illustrate the more comprehensive picture of active management.

Furthermore, there have been some studies and thesis which have to examine the activity and closet indexing by using Active Share. However, these studies are mainly focusing on Finnish, Nordics, and U.S markets, so it would be important to see what the

result is with global and responsible funds and are there differences between the results of this thesis and previous studies since previous studies have found closet indexers in their samples. Studying the funds and market which have not yet studied are beside responsibility the other contribution of this thesis.

According to Pastor and Vorsatz (2020), their working paper is the first study that analyze the performance and fund flows of equity mutual funds during the COVID-19 pandemic. Since there have not been many studies regarding the COVID-19 pandemic in terms of mutual funds, this thesis is trying to expand the literature regarding this subject by studying both the active and responsible funds together. This thesis uses Active Share as a measurement for activity. Active Share is not used in previous studies of active funds and crisis (Moskowitz, 2000; Kosowski, 2006; Pastor and Vorsatz, 2020). Furthermore, Active Share allows to study if the level of activity (higher Active Share / lower Active Share) matter and if it affects to the performance of the fund during the pandemic.

1.3 Structure of the thesis

The structure of this thesis is the following. First, the theoretical background of mutual funds is introduced. The chapter presents the benefits of mutual fund investing and introduces risk, return, and performance measurements of mutual funds. Chapter three presents' theory and products of active and passive management, introduces the theory of efficient markets and focuses on literature regarding active and passive investing. Since this thesis focuses on global and responsible equity funds the chapter four introduces what responsible investing means, the history behind it and presents previous literature regarding responsible investing. After the theoretical part, thesis moves on to the data and methodology which are introduced in chapter 5. The chapter 6 presents empirical results and findings of the thesis and in the final chapter, conclusions and the findings of the thesis are reported.

2 Mutual fund investing

A Mutual Fund or Open-End Fund is a company that pools funds from several investors into a portfolio that can consist of shares, bonds, short-term debt, and other securities. This portfolio can be owned by private investors, companies, and communities and all others who have invested in the portfolio. Therefore, the mutual fund is a collective institution created by investors which offer a chance to benefit for cost-efficiency and expertise of large investor. The principle of the mutual fund is the following. Funds of depositors are collected together, and these funds are invested in several different securities that form the mutual fund. The development of these investments determines the return of the fund. The mutual fund is distributed into fund units that are equally large and give identical rights to fund assets. Investing decisions and fund management are made by the management company. (Puttonen & Repo, 2011: 30, 32; U.S Securities and Exchange Commission (SEC), 2019.)

The capital of a mutual fund be composed of fund units and this capital can change based on the new investments and redemptions of units. The capital varies too when for instance stock prices or interest rates of funds' investments change. Investors can buy mutual fund units straight from the management company or through a broker. As opposed to stock trading investors decide the amount that they are willing to invest, not the number of shares as in stock trading. The number of fund units becomes clear after marking is ended. Mutual fund units are redeemable, which means that the investor has the right to sell the units back to the fund at any time and the management company will redeem the units. (Pörssisäätiö, 2015; SEC, 2019.)

There are several different types of mutual funds in the markets such as money market funds, bond funds, and balanced funds. These funds are suitable for various types of investors. Mutual funds can be classified based on the investment policies, returns, risk, and the regulation of the funds (Puttonen & Repo, 2011: 33; Pörssisäätiö, 2015). This thesis examines 10 global and responsible equity funds. Equity Funds invest primarily in

stocks. These funds can be classified in several ways for instance basing on the geographical investment region, specific industry, or the size of the companies to which the fund is investing. The equity fund's aim is usually to beat the benchmark index which is chosen basing on the investment objects. These investment objects can be also related to ethic or corporate social responsibility (Pörssisäätiö, 2015).

2.1 Benefits of mutual fund investing

Investing in mutual funds provides several benefits. Since the assets of the fund are invested in several different investment objects, they typically provide diversification benefits, and the risk of investments reduces. Mutual funds are also a possibility for the investor, for instance, invest worldwide and benefit from international diversification (Puttonen & Repo, 2011: 36; Pörssisäätiö, 2015; SEC, 2019). There are plenty of different types of mutual funds which means that mutual fund provides versatile chances to invest in different types of investment objects and there is a fund for all type of investor needs.

An individual investor makes the asset allocation decision by choosing which fund and in which percentages the investment is made but leaves the specific security selection to the fund manager. Investors hope that these managers can perform better than they could do if they make the decisions themselves (Bodie, Kane & Marcus 2014: 107). The investment decisions are made by the professional fund managers whose job is to follow how markets are developing. This means that mutual fund investors are benefitting from the expertise of these professionals too. Fund investors do not necessarily have to follow the markets themselves since the fund managers' job and wages are dependent on fund performance. Furthermore, the investor himself does not have to make the investment decisions and the value of the fund units is easy to check for instance from the internet. This results that mutual fund units are easy to care for by the investors. (Puttonen & Repo, 2011: 36 – 37; Pörssisäätiö, 2015.) Since the fund units are easy and typically fast to purchase and sell it means that investing in funds provides liquidity benefit since the

fund units are easy to convert back to money. Furthermore, since the mutual funds are supervised by the official regulators, and management companies have to inform about fund performance regularly, investors get protection and the opportunity to follow the situation and the value of the investment. (Puttonen & Repo, 2011: 37; Pörssisäätiö, 2015.)

Another benefit of mutual fund investing is that mutual funds are not tributaries, and funds can make trades without capital gain taxes and furthermore, mutual funds are considered institutional investors which means that funds can make the trades at lower commissions (Puttonen & Repo 2011: 36-37; Pörssisäätiö, 2015; Bourgi, 2018). Moreover, according to Puttonen & Repo (2011: 37) the investor does not pay taxes until the investor redeems the unit or the yield unit is paid. The mutual fund allows postponing tax payments for profits that are not yet been distribute.

Besides benefits, there are potential expenses, fees, and problems that are related to investing in funds. These issues should take into account since they can reduce the returns on mutual funds and ETFs. Fees and expenses which are related to mutual funds can be divided into two groups: fees that are charged directly from investors and expenses that are charged indirectly. (Puttonen & Repo, 2011: 37; Pörssisäätiö, 2015; SEC, 2019.)

The first group can be considered as a shareholder fee. These fees relate to mutual fund transactions such as buying the fund unit or redeeming it. The subscription fee is typically charged from the investor when buying the fund unit and the redemption fee when the investor sells or redeems their units. Besides, these fees, there can be, for instance, exchange fees that are charged if investors decide to transfer investments to another fund provided by the same management company. (Morningstar, 2009; Puttonen & Repo, 2011: 37, 199; SEC, 2019.)

The second group is typically operational expenses. This group includes expenses that are related to ongoing operations of the mutual fund such as management fee and custodial fee. Operating expenses are typically paid out of the fund assets which means that investors do not pay these costs directly. Typically, the management company charges this type of fee regardless of the mutual funds' returns. This means that fees are charged although the fund return is negative. (Puttonen & Repo, 2011: 37; SEC, 2019.) Besides previously mentioned fees and costs, there are trade costs too that are not included in operational expenses or shareholder fees. These trade costs are caused by security trading and foreign exchange transactions made by fund managers. Nowadays, these costs can be found in annual reports of the equity funds. (Ranta-aho 2019.)

In ETFs, management fees are typically lower than in mutual funds. ETFs who operate a passive investment strategy normally charge management fees, around 0,1 % to 0,5 %. On the other hand, there are expensive ETFs in the markets too. In addition to management fees, there can be other expenses that depend on the country where ETFs are registered. As previously mentioned, ETFs work in the same way as shares do. This means that trading and holding of the ETFs may cause expenses. (Pörssisäätiö, 2015.)

2.2 Risk, return and performance measurements

According to Puttonen and Repo (2011: 80, 85) the risk and the return are important criterions that should be considered when choosing the mutual fund or another investment object. In financial markets these concepts go hand in hand: the higher the risk of the investment, the higher is the return that investors are demanding. In this chapter tools for measuring risk and return of the mutual fund are introduced.

Mutual fund investing includes risks in the same way that any other investing. Risks of the mutual funds are relating to the risks of the chosen investment objects. For instance,

risks of the stock market such as market risk or business risk related to the equity funds and interest rate risk to bond funds. Furthermore, there are currency risks and for instance, liquidity risks that should be considering too. Risk can also be described as uncertainty. (Puttonen & Repo, 2011: 85; Pörssisäätiö, 2015.)

According to Bodie et al. (2014: 107) measuring the risk of the fund properly and using such measures to choose an appropriate benchmark index is not a simple task. According to Puttonen and Repo (2011: 85), a theory for measuring the risk was invented in the 1950's when Harry Markowitz introduces the portfolio theory but computationally those invented models were too complicated to use in practice. The portfolio theory developed as a tool of risk management in the 1960's when professors Sharpe, Lintner, and Moss develop the risk models more simpler and at the same time, the capacity of computers was improving.

Researchers of finance use volatility as one of the key characteristics of risk. The volatility describes the fluctuation of the value of the investment. The higher is the volatility of the investment the higher is typically the risk since the fluctuation results in uncertainty for investors and as previously mentioned uncertainty can be seen as the risk. Computationally the volatility is a standard deviation of returns, meaning that it is the square root of the variance. (Puttonen & Repo, 2011: 85.)

According to Puttonen and Repo (2011: 86), the variance measures the distribution of the values, around its means. The more frequently values differ greatly from their means the higher is the variance and so the risk of the investment. The variance and the square root of the variance (volatility) measure the fluctuation of the return of the investment.

Risks of investments can be reduced by diversification. The benefits of diversification are basing on the that the values of the different securities change differently. For instance, if securities are negatively correlated the value of other security increases when the value of other security decreases. The best possible diversification benefit is achieved

when the correlation is perfectly negative (correlation is minus one). However, in practice finding the securities whose values are changing as a mirror image or independently of each other is hard. The benefits of diversification can be achieved too if there is some positive correlation between the securities. However, if the securities are perfectly positively correlated there is no diversification benefit since the values of the securities move together. (Puttonen & Repo, 2011: 96 – 97.)

The volatility of the portfolio decreases quite fast when the portfolio includes more than one security. Especially if the correlation of new securities is low with the old securities. The risk which can be diversified is called unsystematic risk and the risk that cannot be reduced by diversification is called a systematic or market risk. If the portfolio is well-diversified, the amount of unsystematic risk is truly small, and market risk is all risk remaining. Avoidance of the market risk is not possible even by diversification. (Puttonen & Repo, 2011: 100.)

2.3 Performance of mutual fund

One of the major problems in portfolio management has been the evaluation of the performance of the portfolios which includes risky investments. According to Jensen (1968), there are at least two separate dimensions which are relating to portfolio performance:

1. Do the portfolio managers or security analysts have the ability to increase returns on the portfolio by doing successful prediction about future security prices, and
2. Do the portfolio managers have the abilities to minimize the amount of insurable risk through doing efficient diversification?

As previously mentioned, two major issues that should be considered when making an investment decision are the risk and the return (Puttonen & Repo, 2011: 80). The risks

regarding mutual fund investing and how these risks can be reduced are already introduced. Next, the thesis focuses on how the return of the fund can be measured and introduces some measurements for that.

According to Puttonen and Repo (2011: 82), there are three major dimensions that relate to investing generally as well as in mutual fund investing. These dimensions are the return, the risk, and the time. Previously are presented how the risk can be expressed and measured and in addition concept of the time is quite simple to understand and measure. In the case of the return, the simplest way to describe it is that the return is the change of the value of the investment. Puttonen and Repo (2011: 82) present that the simplest way to calculate the return is to calculate the percentage return. When calculating the percentage return possibly paid yield units should be taken into account. Management fees and holding fees are affecting the return of the fund too but management companies charge those expenses straight from the value of the fund. This means according to Puttonen & Repo (2011: 82) that the investor does not need to take those fees into account when calculating the return.

When comparing mutual funds, it is recommendable to calculate the risk-adjusted return. Calculating the risk-adjusted return is useful for instance when there are two funds and the other fund's return is twice more than the other fund, but the other fund has half less risk. (Puttonen & Repo, 2011: 105.) This thesis uses a Sharpe ratio when calculating risk-adjusted returns. The Sharpe ratio is also called the reward – to - volatility ratio and it is widely used to evaluate the performance of investment managers (Bodie et al., 2014: 134). In the Sharpe ratio, the average excess returns of the portfolio are compared to the total risk of the portfolio which is measured as volatility (standard deviation of excess returns). The Sharpe ratio tells how much more returns the fund is generating in relation to a riskless investment. The higher the value of the Sharpe ratio is the better the fund has performed with respect to its risk. (Puttonen & Repo, 2011: 105; Bodie et al., 2014: 134.)

3 Mutual fund management

One of the dimensions of stock investing is passive portfolio management versus active portfolio management. The stock picking includes similar options as asset allocation does: it can be done passive or active way. (Puttonen & Repo, 2011: 69.) In order to study how active global and responsible equity funds are the meaning of active fund management and how it differs from passive fund management has to be known. In this chapter, concepts of active management and passive management, and the theory behind efficient markets is introduced. Furthermore, the chapter presents the previous studies and literature regarding the debate between active and passive management.

3.1 Active management

The activity of the fund is an interesting term since there are different types of activity. For instance, active security trading is considered to be active management as well as when the fund manager is picking securities that differ from the index and weights of the index. This type of activity is the opposite of index investing and can also be considered as active management although the fund does not trade continuously. Nowadays, it is recommendable that the management companies report the fund's turnover rate which represents how fast the securities are changing in the fund. (Puttonen & Repo, 2011: 122-123.)

Active management means that the content of the fund differs from its benchmark index whereas the passive fund manager makes the investment decisions basing on the benchmark index without using own visions about the possible superiority of another investment's options. In other words, active management is a strategy where the aim is to outperform the benchmark index by doing several specific investments. (Fuller, Han & Tung, 2010; Puttonen & Repo, 2011: 130.) A self-confident fund manager pursues to

overweight those investments which values manager thinks are going to increase more than an average. Correspondingly, based on the manager's view some investments are underweighted. The investor's aim is to choose that active fund manager who may have abilities to beat the market. (Puttonen & Repo, 2011: 130.)

As mentioned before as an active equity fund manager, the goal is to outperform the fund's benchmark index. According to Cremers and Petäjistö (2009) outperforming is possible only by when the fund takes positions that differ from its benchmark. Cremers and Petäjistö (2009) state that there are two ways how the fund can differ from its benchmark. The first way is a stock selection which means that fund manager picks individual stocks to fund which are expected to outperform their peers in the future (cf. Puttonen & Repo, 2011: 130). The second way is factor timing which according to Cremers and Petäjistö (2009) involves taking time-varying positions on systematic risk factors such as entire industries, sectors, or more generally systematic risk relative to the benchmark index. These two ways can be used individually or together in order to differ the fund from its benchmark. Since fund managers use both ways and some favor stock picking over factor timing and vice versa is hard to quantify active management across different funds. For quantifying the active management Cremers and Petäjistö (2009) introduce Active Share as a measurement for active management. The formulas of Active Share and tracking error are introduced more closely in chapter 5.

Beside of active management and active investing there are passive management and passive investment options. Next, passive management and some of the passive investment options are presented.

3.2 Passive management

According to Sushko and Turner (2018), passive investing or passive portfolio management is a strategy that follows the returns of a price index, for instance, an established

market benchmark. The strategy is typically implemented by holding the same constituents as the index has. This means that passive fund manager makes the investment decision basing on the benchmark index and trading is required only when the composition of the index changes. (Puttonen & Repo, 2011: 130; Sushko & Turner 2018).

According to Hyske, Lönnroth, Savilaakso & Sievänen (2020: 155-156) passive investing is a key strategy for several investors, and the popularity of index investing, and ETF investing is increasing rapidly. Investors use passive strategies to either increasing or decreasing exposures to the risks. Typical benefits of passive investing are low management fees and efficient diversification in index funds. Furthermore, the strategy of passive investing is not dependent on the fund manager's ability to interpret the market phases. According to the authors the most common product of passive investing is a product that replicates some stock index. This is beneficial since one transaction provides exposure for even hundreds of companies and simultaneously investor does not need to buy stocks of a single company, but investor get a position in the wanted market easily and a cost-effective way.

Exchange-Traded Fund (ETF) is a mutual fund that can be traded at the exchanges. Units of ETF can be purchase similarly to stocks. ETFs can invest for instance in the stock-, interest rate or commodities markets. (Elo & Saarhelo, 2018: 56). ETF was developed in Canada in 1989 but the popularity and conspicuousness of ETFs increased in 1995 when American Stock Exchange took them as an object for trading. The value of ETF units changes several times a day since the share price of the units varies similar way as stock prices do. ETF may be for instance a fund that replicates some index meaning that ETF invests its asset in a way that weights and investments are as similar as possible with the benchmark index, or ETF can be a fund like a basket of share which includes several stocks. (Saario, 2016 chapter 17; Elo & Saarhelo, 2018: 56; Hyske et al., 2020: 156)

According to Saario (2016: chapter 17) since units of ETFs are traded similar to stocks the investor can for instance buy the wanted index as a way of stock. This means that

purchasing one unit of ETF can diversify the risk across all securities of the index at one time and just by using a little amount of money. Furthermore, when investing in stocks the investor be exposed to both the market risk and the business risk whereas when investing in ETFs the portion of the business risk reduce to insignificant and the investor is only exposed to the market risk.

ETF is not the same product as an index fund which is a mutual fund investing straight to index. The index fund's portfolio is similar to ETF which follows a certain index but in the index fund, the trading of units works in the same way as traditional mutual funds. The index fund is not listed in the exchange, rather the units are purchased straight from the management company. (Saario, 2016: chapter 17; Hyske et al., 2020: 156)

According to Elo & Saarhelo (2018: 59), there are both active and passive ETFs available but according to Sushko & Turner (2018), approximately 2 % do not track an index meaning active ETFs are the small share of all ETFs and they treat all ETFs as passive funds. Furthermore, according to Kaartinen and Pomell (2012: 13) generally ETFs are passive meaning that ETFs follows the benchmark index's risk- and return profile as precisely as possible and minimize the return difference against the benchmark. In this study, ETFs are considered too as passive investment products.

3.3 Theory of Efficient markets

Fama (1970) introduced the theory and hypothesis of efficient markets. In his paper, three different forms of market efficiency are presented. These forms are weak form, semi-strong form, and strong form. In terms of the weak form market, the share prices include information for historical prices or return sequence whereas in the semi-strong form market the prices include all publicly available information, for instance, an announcement of annual earnings and forecasts of future economic trend. In the market, with strong form, the prices additionally are assumed to include all available information

that is relevant for price formation such as insider information. (Fama 1970; Knüpfer & Puttonen, 2018: 171.)

The theory of efficient markets be associated strongly with active fund management and it relates closely to the purpose of this study. According to Knüpfer & Puttonen (2018: 172) if the market price of the stock randomly differs from the real price of the stock (random walk) there should not be a possibility to find continuously over - or under-priced shares from the market by using some specific investment style. According to the authors that means that if markets are efficient, no investors can achieve abnormal returns by using any specific investment strategy or style. In terms of efficient market conditions, index investing, or random stock picking should be the overwhelming strategy since the expenses for other investment strategies would be higher since those strategies include for instance trade and analysis costs. This means that if markets are efficient it makes no sense to invest actively or pay for fund managers or other investment experts since in the efficient market it would not result in added value. (Knüpfer & Puttonen, 2018: 172.)

It can be concluded that, if the markets are efficient no investors should invest in actively managed funds since they should not be able to generate any added value or excess returns. However, there are myriad different kinds of funds where investors are still investing. Does this mean that markets are inefficient or are there other reasons why investors are paying for active management although it should not result in any added value or excess returns? There are several studies that have tried to provide answers for those questions. Next, this thesis focuses on those studies more closely.

3.4 Previous studies

According to the theory of efficient markets, active management should not provide any added value for the investor. Furthermore, several studies have found that actively

managed funds underperform against their benchmarks. For instance, Wermers (2000) measures the performance of the mutual funds between 1975 to 1994 by using the new database which was not available for researchers before. Results show that mutual funds are able to outperform the broad market index by 1.3 % in a year but in a net-return level the funds underperform against the indexes by one percent per year.

Wermers' (2000) results are in line with Carhart's (1997) study. Carhart (1997) demonstrates that expense ratio, portfolio turnover, and load fees have a negative impact on fund performance. In addition, Carhart (1997) finds that individual funds do not generate higher returns by following momentum strategy (cf. Jegadeesh and Titman, 1993), and the result called "hot hand" received by the Hendricks, Patel and Zeckhauser (1993)¹ is mostly driven by the one-year momentum effect of Jegadeesh & Titman (1993)². According to Carhart (1997), the study provide evidence for market efficiency.

Similar results are achieved by Malkiel (1995) who study the mutual fund performance between the years 1971 to 1991 and find that funds underperform against their benchmarks both after management expenses and gross of all expenses except load fees. According to Malkiel (1995), this study does not prove any evidence against market efficiency. Furthermore, the most investors should not try to select a fund manager who appears to have a "hot hand" (a phenomenon meaning that the mutual fund with returns above average will continue to superior performance) and these investors would do better if they choose a low-cost index fund.

¹ Hendricks, Patel and Zeckhauser (1993) find that between 1975 to 1988 substantial gains can be achieved by investing in recent mutual fund winners. They find that a strategy where every quarter the top performers were selected, basing on the last four quarters, results significantly outperforming against the average mutual fund. Against some market indices the strategy work just marginally better.

² Jegadeesh & Titman (1993) study the returns of the zero-cost winners minus losers portfolio in each of the 36 months that follows the formation date of the portfolio. According to authors this portfolio generates positive returns in each of the 12 months after the formation date with the exception of the first month. However, half of the generated excess returns in the year of these past winners and losers are dissipate within the following two years.

Several studies have shown that actively managed funds underperform and according to the theory of efficient markets there should not be any reason for pay active management or invest actively managed funds. However, there are considerable amount of actively managed funds where people invest.

Foster & Warren (2015) investigate why investors are willing to participate in active management although it appears that investors pay more in fees than funds generate excess returns on average. According, the study one reason may be that investors believe that they have the ability to choose and identify good fund managers and possibilities to replace the manager when high returns are no longer expected. Furthermore, it seems that investors may be prone to behavioral biases. Foster & Warren (2015) suggest that the reason behind the wide use of active management illustrates the diversity of investors. The investor may form their expectations basing on the information rather than expected excess returns for the average fund manager.

The question regarding active management is investigated by Gottesman and Morey (2016) too. According, the study, the most obvious answer for that question is that investor believes that active funds have the potential for superior performance since the active fund have possibilities to increase or reduce risks when comparing to index funds. Gottesman & Morey (2016) find the relationship between the activeness of the fund and governance of the fund. According, the study the funds with better governance are significantly more active than other funds.

According to Gruber (1996), the explanation why investors pay for active management is since the future performance of the fund is in part predictable from the fund's past performance. This can occur since the price of the fund depends on net asset value and does not change although the fund may have superior management meaning that management abilities are not priced at the fund's price. According to Gruber (1996), it seems that sophisticated investors have recognized that, and evidence for this is that the money flows from in and out of the fund follows the predictors of future performance.

Sophistication is part of an explanation in Müller and Weber's (2010) study too. By constructing an objective financial literacy score Müller and Weber (2010) find that there is a statistically significant relationship between financial literacy and the likelihood that investors choose the low-cost fund alternatives. According to the authors, this means that low financial expertise is one explanation for the question regarding the popularity of active investing. However, even most sophisticated investors overwhelmingly invest in active funds although they are aware of less expensive alternatives.

According to Müller and Weber (2010), overconfidence may be the reason why investors choose active funds over passive alternatives since they find a positive relation between the likelihood of buying an active fund and belief of being better than average in identifying superior investments. This result is in line with Foster & Warren (2015) study. Furthermore, according to Müller and Weber (2010), the level of financial sophistication has an impact on fund choosing since people with less knowledge mainly seek assistance from traditional distribution channels such as financial advisors and these advisors have incentives to recommend active funds. It can be deduced that studies have found different explanations and different reasons for paying active management. Furthermore, there have been studies that have shown that active investing can outperform and generate excess returns. For instance, Jegadeesh & Titman (1993) find that trading strategies that buy past winner stocks and sell past loser stock generate significant abnormal returns in the period between 1965 – 1989.

Furthermore, Cremers and Petäjäistö (2009) find that their measurement for active management, Active Share can predict fund performance. Authors find that equity mutual funds with the highest Active Share outperform their benchmarks by 1.51 % to 2.40 % per year and outperform holds even before fees (1.13 % to 1.15 % per year). Also, as mentioned in the introduction Shukla & Singh (1997) and Gallagher et al. (2017) find that global equity funds can outperform.

Shukla & Singh (1997) examine the performance of global equity mutual funds which hold both U.S and foreign securities between 1988 to 1995. In their study, they analyze for instance total and risk-adjusted-performance of these funds with respect to global benchmarks. According to the authors the purpose of the study is to show the benefits of active portfolio management on a global scale. Furthermore, they compare the performance of global funds to domestic funds (funds holding U.S securities).

The results from Shukla & Singh (1997) show that the average monthly return for the benchmark was 0.61 % whereas the average monthly return for the global funds, as a group was 0,76 % and this difference between the mean average returns was statistically significant. Furthermore, the risk-adjusted returns of global funds were also superior since Sharpe ratios were 0.08 in global funds and 0.06 for the benchmark, and Treynor ratio 0.44 for global funds and 0.16 for the benchmark. Both Sharpe and Treynor ratios were statistically significant, and results show that global funds outperform the benchmark in terms of total and risk-adjusted returns. Furthermore, Shukla & Singh (1997) find too that domestic equity funds in the U.S perform even better than global equity funds.

Same kind of results founded by Gallagher et al. (2017). By using a unique dataset of global equity funds' quarter holdings Gallagher et al. (2017) examine the performance of 143 funds between 2002 to 2012. The authors find that global funds outperform their benchmark by 1,2 % to 1,4 % per annum before fees. According to the authors, a substantial portion of outperformance is attributable to selecting stocks that outperform their local markets. Furthermore, Gallagher et al. (2017) suggest that institutional investors should consider active management in global equity markets since they pay modest fees.

According to Petäjistö (2013), active fund managers are not all equal and there are differences between the activity and type of active management among active fund managers. Active managers are divided into several categories on the basis of Active Share and tracking error. As mentioned earlier, according to Cremers and Petäjistö (2009)

Active Share is a reasonable proxy for stock selection, and tracking error measures exposure to systematic risk. According to Cremers and Petäjistö (2009) and Petäjistö (2013), there are four different types of active managers: active stock pickers (high Active Share, low tracking error), factor bets funds (low Active Share, high tracking error), concentrated funds (high Active Share, high tracking error), and closet indexers (low Active Share, low tracking error). Furthermore, there are a large number of funds that are moderately active and do not have a clearly distinctive style. According to the results of the study, closet indexers, funds that use factor bets, and funds with average activity have all lost the money of the investor. However, the group's most active stock pickers beat their benchmarks after fees and expenses by 1.26 % in a year before fees by 2.61 %.

According to Petäjistö (2013), the high Active Share has economically and statistically significant predicting power for future returns of both small-cap and large-cap funds. The results of the study conclude that the most active stock pickers have generate added value for their investments and outperform their benchmarks by about 1,26 % a year after all fees and expenses. On the other hand, the manager who does factor betting has destroyed the added value after fees. Closet indexers are just able to match with their benchmarks but after fees are considered closet indexers underperform against their benchmarks. (Petäjistö, 2013.)

Petäjistö (2013) states that economically, these results mean that markets are not fully efficient since there are inefficiencies. These inefficiencies can be exploited by doing active stock picking. Furthermore, the most successful time for active stock picking is when there is high cross-sectional dispersion in stock returns. These results suggest mutual fund investors should pay attention to active management measurements. According to Petäjistö (2013), when the investor is choosing the mutual fund the best choice is the fund with the most active stock-picking strategy or combination between active stock-picking funds and inexpensive index funds.

As previous studies presented there are evidence both in favor and against passive management and active management. Although several studies have shown that actively managed funds underperform there is still evidence that has suggested that in certain circumstances and for instance with a certain type of activity these actively managed funds can outperform their benchmarks. Furthermore, there are several explanations why people are paying for active management. The debate between the superiority of active and passive management has last for decades. Another hot debate in recent years regards responsible investing. Since responsible investing is the other major theme in this thesis it is presented next.

4 Responsible investing

To examine the activity of global and responsible funds the definition of responsible investing has to be known. According to Lönnroth, Savilaakso, Sievänen & Hyske (2012) the responsible investing means that it takes environmental, social responsibility, and governance issues (ESG –issues) into account in the way that the return and risk profile of the portfolio improves. There is no single right way to do responsible investing, but each investor chooses the way and tools which fit the best in the investor's investment strategy. The investor can pay attention to the ESG – issues by exploiting different approaches and investing responsibly in different asset classes. (Lönnroth et al., 2012: 11.) The responsible investor should consider ESG as a whole and does not just focus on one aspect of ESG. The return and ESG issues are not against each other in responsible investing and by combining them it is possible to better identify opportunities and risks which are related to investment objects. (Hyske et al., 2020: 22).

The origin of responsible investing is in ethical investing but these two differ in terms of expected return, investment philosophy, and partly among tools of investing. Ethical investing means that investors exclude certain industries or companies because the values and morals of those industries and companies are in contradiction with investor's values and moral. In ethical investing, the investor can abdicate for long-term returns. However, responsible investing provides an opportunity to combine ethical aspects in profitable investing. Traditionally, responsible investing is made by doing straight stock investments and mutual fund investments. However, in recent years other asset classes are started to interest responsible investors too. (Hyske et al., 2020: 20,23.)

Nowadays responsibility aspects can be taken into account with other asset classes and the responsible investor does not need to exclude single asset classes from the portfolio. However, each asset class has its own challenges, which are relating to how these asset classes pay attention to aspects of responsible investing. A mission of responsible investor is to examine the features of each asset class before making the investment decision.

A starting point for the responsible investor is to understand the return and risk profiles of each asset class, for instance bonds versus stocks, since these features cannot be affected by responsible investing. (Lönroth et al., 2012: 96.)

There are several investment options available for a responsible investor to choose from. Financial markets provide, for instance, responsible mutual funds, sustainable development theme funds, sustainable index – funds, or responsible investor can choose a wealth manager who obeys principles of responsible investing. The wealth manager can be responsible although a selection of the investment products does not include funds, which are named as responsible funds. By signing the Principles for Responsible Investment (PRI), the wealth manager can address a commitment and a willingness to improve responsible investing practices. This can be shown for instance, by being an active owner and by including responsible criteria in investment processes. Furthermore, PRI collects information about the best practices of responsible investing in different asset classes among investors who have signed the principles of PRI. These practices and information can be exploited by the signers of the PRI. (Lönroth et al., 2012: 97, 99.)

As mentioned earlier, in this thesis all studied funds are considered to be responsible funds if they advertise themselves for instance as ESG, Climate, or Sustainable fund, incorporate ESG issues in their investment processes, or have received over 3 sustainability globes from Morningstar.

The Morningstar Sustainability Rating for funds was released in 2016. The idea of this rating is to help investors to evaluate how the companies in a fund's portfolio are managing the environmental, social, and governance (ESG) issues in their businesses. This rating provides a reliable and objective way to evaluate how funds are meeting ESG issues and challenges. (Hale, 2017; Morningstar, 2019.)

All funds in the sample are considered to be responsible and they all fulfill more than one of just mentioned responsibility criteria. Furthermore, all of the funds incorporate

ESG issues so according to Lönnroth et al. (2012) funds can be considered to responsible investors. The responsible actions of all funds can be found in the appendices 1. Furthermore, some of the funds have signed PRI too. These principles are introduced next.

4.1 Principles for responsible investing

The Principles for Responsible Investment is truly independent and the leading proponent of responsible investment in the world. The PRI works to understand the investment implication of ESG factors and to support its network of international investors to incorporating ESG factors into investment and ownership decisions. The PRI encourages investors to use responsible investment to improve returns and better risk management. Although the PRI is connected with global policymakers, it is not associated with governments, the PRI is supported by the United Nations, but it is not a part of the organization. (PRI, 2021.)

In April 2006, the United Nation's Principles for Responsible Investment (PRI) were launched in New York. The principles of responsible investing include six principles that should be taken into account when making investment decisions. These principles are pretty generic so that each investor can engage these principles in that way what works best for their investment strategy. (Lönnroth et al., 2012.) These principles were developed by an international group of institutional investors and principles reflect the increasing relevance of ESG – issues in investment practices (PRI, 2021). By signing the Principles for Responsible Investment, the signer engages:

Principle 1. Will incorporate ESG – issues into investment analysis and decision-making processes.

Principle 2. Will be an active owner and adapt ESG – issues into ownership policies and practices

Principle 3. Will seek appropriate disclosure on ESG – issues with the entities in which we invest in

Principle 4. Will promote acceptance and implementation of the Principles for Responsible Investment within the investment industry

Principle 5. Will work together with other investors to enhance effectiveness in implementing the Principles

Principle 6. Will report on activities and progress towards implementing the Principles for Responsible Investment

(Lönroth et al., 2012: 27 – 28; PRI, 2021)

4.2 Methods of responsible investing

Incorporating the ESG criteria into investment analysis, investment decision process, and portfolio construction is a key strategy of sustainable and responsible investing (US SIF, 2021). According to Hyske et al. (2020), there are several different methods to apply in responsible investing. When comparing these different methods, it is important to take into account that different methods vary in terms of their risk-return profiles. Next, seven responsible investment strategies presented by Eurosif (2021a) are introduced. Eurosif is the leading European association for the promotion and advancement of sustainable and responsible investment across Europe (Eurosif, 2021b).

1. Best – in – Class

An approach where the investor selects the best performing or most improved companies or assets basing on the ESG analysis and ESG criteria.

2. Engagement & Voting

An approach that aims to influence behavior or increase disclosure. This is a long-time process involving engagement activities and active ownership through voting of shares and engagement with companies on ESG matters.

3. ESG Integration

An approach where ESG risks and opportunities are explicitly included in traditional financial analysis and investment decisions. In this approach, ESG factors are explicitly considered alongside financial factors in the analysis of investments. Furthermore, the integration process focuses on how ESG issues may impact company financials and this possible impact may affect the investment decision too.

4. Exclusions

An approach where specific companies, industries, or countries are excluded basing on specific criteria. The common exclusion criteria include weapons, pornography, tobacco, and animal testing.

5. Impact Investing

An approach where investments are made into companies, organizations, and funds with the intention to generate social and environmental impact alongside financial return.

6. Norms – Based Screening

An approach where investments are screened basing on the international norms or combinations of norms regarding ESG factors.

7. Sustainability – themed

An approach where investments are regarding themes of the development of sustainability. For instance, thematic funds focus on specific or multiple issues related to ESG.

This type of funds may be related to for instance climate change or eco-efficiency and these funds are required to have an ESG analysis or screen of investments.

4.3 Responsible funds

Responsible funds use different investment strategies and approaches, therefore investors should examine which of these approaches suit best for investor's own needs. The responsible funds usually exploit several approaches side by side. These approaches can be an avoidance of certain investment objects, affection on those objects, or including the ESG criteria in the investment analyses in different methods. Many of the funds, which are named as the responsible, use a global investment strategy. Besides the responsible mutual fund, the investor can choose the responsible theme fund. These funds choose their investment objects based on a certain subject or industry. Since theme funds are centralization in specific industries the volatility of these funds is high. That is why these funds work best as a part of a well-diversified investment portfolio. (Lönroth, et al., 2012: 99). In this study, the sample consists of both responsible funds and theme funds. These theme funds focus for instance on sustainability and climate.

Along with the responsible mutual funds and theme funds, there are index funds and ETFs available for responsible investing which are basing on the research made by an index supplier. Index funds for sustainable development include the most responsible companies from different industries. Every well-known index supplier has its own sustainable development indexes and the most widely used is the Dow Jones Sustainability Indexes (DJSI), FTSE4Good, and MSCI Sustainability Indexes. (Lönroth et al., 2012: 100; Hyske et al., 2020: 151)

The increase in passive investing has resulted that several index providers and asset management companies have started to develop ESG stock indexes and funds that replicate those indexes. The amount of ETFs and amount of assets held by ETFs which follow ESG

strategies have rapidly increased from the year 2015 and in 2019 there were over 220 ETFs that follow ESG strategies. However, this covers approximately under 1 % of all passive stock investing markets in 2018 but the increase is accelerating and the world's largest index providers such as S&P Dow Jones Indices, MSCI, FTSE Russel, and STOXX are continuously providing new responsible index strategies. (Hyrskke et al., 2020: 158.)

According to Hyrskke et al. (2020: 159-160) stock indexes' ESG strategies may for instance include exclusion or favoring basing on ESG ratings of the companies. Furthermore, active ownership and impacting have become more common strategies for responsible stock index funds and ETFs. Furthermore, responsible benchmark indexes may encourage companies that are not included in the responsible indexes to improve their own actions and ESG reporting if they want to be part of these indexes.

4.4 Previous studies

There have been several studies examining the performance of responsible investing and responsible mutual funds. However, the results of these research have varied and there is evidence that responsible investing and responsible mutual funds can both outperform and underperform against conventional funds and benchmarks.

Chen and Scholtens (2018) want to establish whether the passive socially responsible funds (SRI) are useful for responsible investors and should the responsible investments be managed passively or actively? In their study, they examine 142 US mutual funds and ETFs (120 active funds, 9 index funds, 12 passive ETFs, and 1 active ETF). All of the studied funds have different attributes for instance being ethical, environmental, or socially responsible.

Chen & Scholtens (2018) do not find any persuasive evidence that active SRI funds can exhibit superior financial performance although these funds are expensive than passive

ones. However, in a group of environmentally responsible funds the passive funds trail behind active funds. Passive funds for instance have much higher exposure to market beta, foreign equities, and growth stocks than active ones. Although both passive and active funds fail to generate positive alpha the dispersion of negative alpha is double in passive funds than active funds. According to Chen and Scholtens (2018) active and passive SRI funds do not differ in terms of risk-adjusted returns in general.

However, according to Chen & Scholtens (2018), findings suggest passive SRI funds over active funds as a rational choice for the responsible investor. Despite that, most of the SRI investments still are in active SRI funds. Chen and Scholtens (2018) provide a reason behind this phenomenon. According, authors the one reason for this phenomenon is that SRI investors are more interested in ethical and social issues than fund performance. This explanation is in line with Renneboog, Ter Horst, and Zhang (2008a).

Renneboog, Ter Horst, and Zhang (2008b) study whether SRI funds outperform or underperform conventional funds and are the result affected by higher screening. They examine, do investors pay a price for investing in socially responsible investment funds, or do they obtain superior returns. The research main hypotheses are that ethical, social, environmental and governance considerations affect the stock prices and investors pay a price for the use of SRI screening by funds.

According to Renneboog et al. (2008b), the reason why investors may be willing to pay for social responsibility is based on aversion to corporate behavior which is deemed unethical/asocial. Alternatively, the reason may be that the investor expects SRI funds to outperform their benchmarks. Authors find that in many European, North – American, and Asia – Pacific countries SRI funds strongly underperformed their domestic benchmark portfolios but when comparing alphas of the SRI funds with the conventional funds they conclude that there is no statistically significant evidence for underperforming in most studied countries.

However, there are countries such as France, Ireland, and Sweden where investors pay price for SRI investing since alphas are 7 % to 4 % below the conventional alphas per annum. Furthermore, Renneboog et al. (2008b) find that screening activities reduce the risk-adjusted returns. For instance, funds with one additional screen is associated with 1 % lower four-factor-adjusted return per annum when all else is equal. Moreover, according to Renneboog, Ter Horst & Zhang (2008a) existing studies hint that SRI investors are willing to accept inferior financial performance when targeting social or ethical objectives.

The question about costs of responsible investing have generate several studies. The reason why there may be some differences is since using SRI strategies (screening etc.) may cost extra for funds and therefore cause more costs and reduce the performance. That question is studied for instance by Cortez, Silva & Areal (2009).

Cortez et al. (2009) examines the performance of 88 socially responsible mutual funds from Europe which investing globally and / or in to European markets. Results of the study show that in general European socially responsible funds present neutral performance when comparing to conventional and socially responsible benchmarks. However, estimates of performance tend to be slightly higher when funds are evaluated in relation to socially responsible benchmarks.

According to Cortez et al. (2009), results conclude that performance of European SRI funds is comparable to conventional funds and, investor can add social screens to their investments without compromising financial performance in European funds. Moreover, the results suggest that investing in socially responsible ETF may be beneficial for investor since the socially responsible index shows a neutral performance in relation to the conventional one. This result is in line with Chen & Scholtens (2018).

Hamilton, Hoje & Statman (1993) too conclude similar results with Cortez et al. (2009). Hamilton et al. (1993) study is it possible to doing well while doing good, with this

question they refer to socially responsible investing and examine are the expected returns of socially responsible portfolios equal, higher, or lower than the expected returns of conventional portfolios. According to Hamilton et al. (1993) results of this study indicate that social responsibility factors have no effect on expected stock returns and the market does not price social responsibility characteristics. This means that investors do not lose when investing in socially responsible mutual funds. However, investors do not either “do well while doing good.”

Studies (Hamilton et al., 1993; Cortez et al., 2009) have shown that SRI funds do not underperform against conventional funds. According to Schröder (2004) that is an interesting result since SRI funds only use a subset of the total investment universe. According to the author, this should result that SRI funds’ performance should be the same or worse than conventional funds. The results of Schröder (2004) study show that most of the German, Swiss, and the U.S SRI funds do not significantly underperform their benchmarks. According to Schröder (2004), it seems that there are no disadvantages to using socially screening since socially screened assets do not underperform against the conventional assets. Therefore, the investor does not have to expect a significantly lower performance when investing socially responsible options either the investment universe is restricted. It can be concluded that Schröder (2004) result is in line too with Hamilton et al. (1993) and Cortez et al. (2009).

Since most of the studies have concluded that responsible investing does not underperform conventional options there are studies too that have found that responsible investing may generate added value. Kempf & Osthoff (2007) examine how various socially responsible criteria impact the performance of SRI screened portfolios. Their paper’s main question is that is it possible to generate an abnormal return by using a trading strategy based on past SRI ratings. Results suggest that past SRI ratings are valuable information for investors and using a simple long-short trading strategy can generate high abnormal returns. These returns can be achieved by using the best-in-class screening or

the positive screening but not by using the negative screening. The best-in-class approach typically generates the highest alphas.

Derwall, Guenster, Bauer & Koedijk's (2005) study too finds benefits from responsible investing. Derwall et al. (2005) study can SRI lead to inferior or superior portfolio performance. The study tested this by using the concept of eco-efficiency which can be described as an economic value that a company creates for instance by producing products relative to the waste that the company generates. The study presents the evidence that a stock portfolio that consists of large-cap companies labeled the most eco-efficient outperformed the portfolio which contains less eco-efficient companies over the period 1995 – 2003. According to the authors, this result suggests that incorporation with environmental criteria in the investment processes can be beneficial.

There have been several studies that have examined the performance and possible costs of responsible investing and responsible funds. Basing on several studies (e.g., Hamilton et al., 1993; Schröder, 2004; Cortez et al., 2009) it seems plausible that responsible investing does not underperform against conventional funds and responsible investors do not have to pay for responsible investing meaning that investor should not expect smaller returns. Furthermore, it seems that there are possibilities to generate added value too at least by implementing a certain method of responsible investing (cf. Derwall et al., 2005; Kemp & Osthoff, 2007). From that perspective, it may be encouraging to invest in responsible investment options. However, some studies (Cortez et al., 2009; Chen & Scholtens, 2018) recommend passive responsible options over active ones. That is an interesting result when thinking of the purpose of this thesis and it is interesting to see how these actively managed global and responsible funds perform in this study.

5 Data & Methodology

This chapter presents the data and the methodology of this study. In this thesis the Active Share, tracking error, and performance are examined for 10 different global and responsible equity funds in a time period between 31.12.2018 – 30.06.2020. The concepts of Active Share, tracking error, and performance measurements are introduced in the methodology chapter, and funds and index data are presented next.

5.1 Data

The sample consists of 10 equity funds and 6 of them advertise (mentioned in the name of the fund) themselves as ESG, climate, sustainability, ethical, or transition fund. The rest four of the sample are named as Global (World) funds but these funds incorporate ESG, follow principles of responsible investing and take sustainability aspects into account. Furthermore, these four funds which are not named responsible have achieved four or five Sustainability Globes from Morningstar. The list of studied funds with an introduction about responsibility actions and methods of the fund can be found from appendices 1.

The reason why these funds have been chosen for this thesis is that they all invest globally and are considered to be responsible. Besides the responsibility and global investment universe, the reason for choosing these funds is that all funds have announced that they have the same benchmark index, MSCI World. The same benchmark index enables to the calculation of Active Share more reasonable way and enables to make for instance performance comparison between the funds. Furthermore, all of the chosen funds are UCITS-funds which means that all funds are regulated in the same way.

To calculate the Active Share, the investments of the fund and weights of these investments have to be known. This information is gathered from annual- and semi-annual reports of funds. The other part of Active Share calculation is the benchmark index weights and constituents. All of the funds of this thesis have announced that their benchmark index is the MSCI World Index and that is why this thesis uses that as a benchmark index when computing the Active Share.

When introducing Active Share Cremers and Petäjistö (2009) use benchmarks indexes that produced the lowest Active Share. However, according to Petäjistö (2013), the benefit of using the fund's self-reported benchmark is that the fund manager has publicly committed to beat the announced benchmark index. Therefore, investors and fund managers are focusing on the fund's performance relative to the announced benchmark. In his paper (2013) Petäjistö uses benchmarks self-reported by funds and this thesis is following the same methodology.

According to, the Index provider MSCI, the MSCI World Index is a broad global equity index with 1 583 constituents. The index represents large and mid-cap equity performance across 23 Developed Markets countries covering approximately 85 % of the free float-adjusted market capitalization in each country. (MSCI, 2021a; MSCI, 2021b.) The data for the MSCI World Index is received straight from MSCI³⁴ (2021c) and it includes all the constituents and weights about the index at 31.12.2018, 28.06.2019, 31.12.2019, and 30.06.2020.

Since the MSCI World Index is a broad global equity index it is rational to use it as a benchmark for Active Share calculations and since all of the funds from the sample are investing globally it is reasonable why chosen funds are using it as a benchmark.

³ Please notice that The MSCI data contained herein is the property of MSCI Inc. (MSCI). MSCI, its affiliates and its information providers make no warranties with respect to any such data. The MSCI data contained herein is used under license and may not be further used, distributed or disseminated without the express written consent of MSCI.

⁴ I am grateful that the MSCI provides the index data and makes this thesis possible.

The time period of this thesis is 31.12.2018 – 30.06.2020 since that is the period when all of chosen funds have been existing, have had MSCI World as a benchmark and annual- and semi-annual reports have been available. The longer period would be better for reliability of the thesis but since there are no database available for students and all the information gathering has to be done by hand from annual- and semi-annual reports of the funds this is chosen time-period for this study. The problem with the data (no databases or reports available) and the fact that all funds did not existing or not have the same benchmark is the reason why there are not more equity funds examined in this thesis.

To calculate the tracking error and returns of the funds, the value of the fund units has to be known. The value of fund unit was gathered on last the day of each month. If months last day fund-unit value was not available this thesis uses the next available value or calculate the average from the latest available values of the fund-units. The value of fund-unit information was gathered from the website of the funds and fund management companies. For each fund, 19 fund units value observations are gathered. These same values are used too when the Sharpe ratio is calculated. Furthermore, to calculate the tracking error and returns, the value of the benchmark index MSCI World is needed. This data is from the MSCI website and was gathered on the last day of each month too and resulted in 19 observations.

The sample of this thesis consists of 10 equity funds. Funds are in different sizes basing on the number of stock holdings and total values. Number of stocks hold by funds are reported below in Table 1, total values of the funds with rounding's in Table 2 (notice that funds names are abbreviated) and descriptive statistics of the sample are reported below Table 3. The largest fund basing both the value of the fund and the number of holdings is Nordea 1 Global Climate and Environment Fund with an average total value during the studied period of over 1,9 billion euros. Nordea World Fund has the most holdings (on average 135.5) during the studied period.

During the studied period, the fund with the lowest value is Evli Global X with an average total value of approximately 8,2 million euros and the fund with the least number of stock holdings is Carnegie Global with average of 22 stocks. As can be seen from the Tables below the sample consists of a wide range of funds when considering the number of holdings and the total value.

Table 1. Funds holdings 31.12.2018 – 30.06.2020

GLOBAL AND RESPONSIBLE EQUITY FUNDS	NUMBER OF STOCKS HOLD				AVERAGE
	31.12.2018	30.06.2019	31.12.2019	30.06.2020	31.12.2018 - 30.06.2020
Nordea World Fund	142	134	133	133	135.5
Aktia Global	88	88	82	78	84
Sparinvest SICAV Ethical Global Value	74	74	76	75	74.75
Evli Global	71	68	71	66	69
Evli Global X	68	67	67	66	67
Swedbank Robur Transition Global	60	61	59	58	59.5
DNB Fund Global ESG	65	57	54	61	59.25
Nordea 1-Global Climate and Environment Fund	49	49	51	53	50.5
Danske Invest Sustainability Equity Fund	47	46	50	47	47.5
Carnegie Global	21	22	23	22	22
AVERAGE	68.5	66.6	66.6	65.9	66.9

Table 2. Total value of the funds

GLOBAL AND RESPONSIBLE EQUITY FUNDS	TOTAL VALUE				AVERAGE
	31.12.2018	30.06.2019	31.12.2019	30.06.2020	31.12.2018 - 30.06.2020
Nordea 1	958 800 019 €	1 354 724 474 €	2 434 684 784 €	3 061 795 289 €	1 952 501 142 €
Nordea W	1 491 509 800 €	1 657 845 800 €	1 804 896 200 €	1 673 016 500 €	1 656 817 075 €
Swedbank	275 471 365 €	366 215 920 €	417 985 845 €	426 880 626 €	371 638 439 €
Danske	245 448 541 €	290 432 803 €	320 863 881 €	294 517 433 €	287 815 664 €
Evli	212 318 667 €	180 460 074 €	174 917 308 €	118 188 990 €	171 471 260 €
Sparinvest	106 180 036 €	144 609 157 €	158 332 056 €	112 813 842 €	130 483 773 €
Aktia	67 252 610 €	80 146 907 €	78 760 331 €	75 575 633 €	75 433 870 €
Carnegie	11 471 664 €	25 329 612 €	31 860 041 €	23 702 238 €	23 090 889 €
DNB	20 842 740 €	14 573 770 €	16 686 940 €	14 493 790 €	16 649 310 €
Evli X	5 605 327 €	8 066 432 €	10 017 574 €	9 318 822 €	8 252 039 €
AVERAGE	339 490 077 €	412 240 495 €	544 900 496 €	581 030 316 €	469 415 346 €

Table 3. Descriptive statistics

<i>NUMBER OF STOCKS HOLD</i>		<i>TOTAL VALUE OF THE FUND (EUR)</i>	
Mean	67.39	Mean	469 415 346.05
Standard Error	4.46	Standard Error	117 103 298.03
Median	65.5	Median	151 470 606.83
Mode	61	Mode	#N/A
Standard Deviation	29.92	Standard Deviation	740 626 286.58
Sample Variance	894.89	Sample Variance	5.48527E+17
Kurtosis	1.4	Kurtosis	3.7
Skewness	1.05	Skewness	2.06
Range	121	Range	3 056 189 961.74
Minimum	21	Minimum	5 605 326.93
Maximum	142	Maximum	3 061 795 288.67
Sum	3032.52	Sum	18 776 613 841.86

5.2 Methodology

In this study, the activity of the global and responsible equity funds is going to be measured by using the concept of Active Share and tracking error. Furthermore, the performance of the fund is going to be measured as the percentage return and risk-adjusted return are calculated by using the Sharpe ratio.

The purpose of this thesis is to examine how active are global and responsible equity funds in terms of Active Share. Besides Active Share this thesis uses tracking error too since according to Cremers and Petäjistö (2009) the active management should be studied by using two-dimension which are Active Share and tracking error since Active Share capture the deviation in portfolio holdings compared to a benchmark index and tracking error measures the volatility of portfolio returns regarding its benchmark index. Before Cremers and Petäjistö (2009) introduced Active Share previous studies use only tracking error as the measurement for active management. As pointed out by Cremers and Petäjistö (2009) both of these measurements should be used when computing the active management of the fund. That is why both of the measurements are used in this study.

The concept of Active Share is introduced by Cremers and Petäjistö (2009). Active Share is a measurement of active portfolio management and it represents the share of portfolio holdings that differ from the benchmark index holdings. Active Share's idea is to quantify active management by comparing the holdings of a mutual fund with the holdings of its benchmark index. Active Share is defined as:

$$(1.) \text{ Active Share} = \frac{1}{2} \sum_{i=1}^N |w_{fund,i} - w_{index,i}|$$

where,

$w_{fund,i}$ = weight of asset i in the fund

$w_{index,i}$ = weight of asset i in the index

And the sum is taken over the universe of all assets. (Cremers & Petäjistö, 2009.)

According to Cremers and Petäjistö (2009), for a mutual fund that never shorts a stock and never buys on margin, Active Share will always be between 0 and 100 %. Mutual funds with an Active Share of less than 20 % are considered to be index funds. When thinking about closet indexers, which means non-index funds with relatively low Active Share the bound is between 20 % and 60 %. This results that the fund is actively managed when Active Share is over 60 %.

This thesis calculates the Active Share for each studied fund for 31.12.2018, 30.06.2019 (or 28.06.2019 since 30.06.2019 was Sunday and MSCI World Index is only calculated weekdays), 31.12.2019, and 30.06.2020. Furthermore, the average of these four observations is calculated in order to see if there are any major changes occurring in Active Share in the studied period.

As can be seen above according to Cremers and Petäjistö (2009) when computing the Active Share, the sum should be taken over of all asset's positions such as cash and bonds

since they might be part of the portfolio or the index. In this study, the cash, bonds, and possible money market instruments are included into funds Active Share calculations. Regarding the cash in calculations of the same opinion is shared by Gillman from CFA (2016). According to Gillman (2016), cash holdings should be included in the Active Share calculations since holding cash is an active decision of the fund manager.

As Active Share is a new measurement of active management the traditional measurement is tracking error since it describes how well the portfolio can track the benchmark. Tracking error is also known as tracking error volatility or active risk (Grinold & Kahn 1995; Cremers & Petäjistö 2009). Tracking error represents the volatility of the difference between a portfolio return and its benchmark index return and is defined as:

$$(2.) \text{ Tracking error} = stdev (R_{fund} - R_{index})$$

where,

$stdev$ = The time-series standard deviation

R_{fund} = Fund return

R_{index} = Index return

(Grinold & Kahn 1995; Cremers & Petäjistö 2009.)

To calculate the tracking error, this thesis uses the month's last date values of fund units and the month's last date values of MSCI World. Funds and index returns are calculated as the percentage return which is, according to Puttonen and Repo (2011: 82) the simplest way for return calculations. Since all of the funds used in this thesis are growth funds nor yield funds there are no needs to be concern about possibly paid yield units. As mentioned earlier different types of fees (management and holding fees) are affecting the returns of the fund. However, these fees are already charged from the value of the fund, so they are not a concern for the return calculations of this thesis (cf. Puttonen & Repo, 2011, 82). According to Erkkilä (2020), the trade costs of the funds are charged straight from the value of the fund too.

As previously mentioned when calculating risk-adjusted returns this thesis uses the Sharpe Ratio calculated as follows:

$$(3.) S = \frac{r_i - r_f}{\sigma_i}$$

where,

S = Sharpe ratio

r_i = Fund i returns

r_f = Return from the risk – free investment

σ_i = Standard deviation of fund i returns

(Adapted from Sharpe, 1966; adapted from Puttonen & Repo, 2011: 105)

In terms of fund returns, this thesis uses months last date values of fund units and calculate the percentage return. The return from the risk-free investment is then subtracted from the percentage return. As a risk-free investment the average 3-month Euribor during the studied period is used. On average 3-month Euribor was -0.355 %. 3-month Euribor is used for Sharpe calculation for instance by Aktia (2021). Furthermore, the volatility of the fund is calculated from fund returns. To calculate the Sharpe ratio this thesis calculated the average for all $r_i - r_f$ values and divided it by volatility of the fund.

5.3 Limitations and notices

There are some limitations and notices in the data and the methodology in the thesis which are introduced next. Derivatives are not counted in the Active Share calculations since most of the funds have not used them in the studied time period. Furthermore, the weights of derivatives (Warrants, rights, and forward contracts) used by the funds (Sparinvest Ethical Global and Nordea Climate and Environment Fund) are slight. This is

in line with Cremers and Petäjistö (2009) who state that mutual funds tend to have negligible derivative positions.

Some of the funds in the sample have announced the fund's Active Share on the annual and/or semi-annual reports or on the website of the management company. However, these reports do not provide a formula or time period for the Active Share calculations. In order to compare funds and examine the research questions, this thesis calculate the Active Share for each fund in the same way by following the formula introduced by Cremers and Petäjistö (2009). Furthermore, Nordea 1-Global Climate and Exchange fund announced in its KIID that the fund have taken MSCI World Index as a benchmark at 14.12.2020 (Nordea, 2021). However, the fund has not announced the previous benchmark. Therefore, this thesis uses MSCI World Index as Nordea 1- Global Climate and Environment Fund benchmark during the studied period.

This thesis examines 10 global and responsible equity funds. Besides eight traditional mutual funds (owned by the investors) the sample consists of two SICAV funds (Nordea 1–Global Climate and Environment fund & Sparinvest SICAV Ethica Global Fund). A SICAV stands for Société d'Investissement á Capital Variable and it means a fund with variable capital. The SICAV fund differs from the mutual funds thus that the SICAV's capital is owned by the limited company whereas the capital of the mutual fund is owned by the investors who have invested in the fund. The stocks of the SICAV's are owned by the investors and when these investors subscribing and redeeming the stocks the capital of SICAV changes and this why the SICAV fund is called a variable capital fund. However, the value of these stocks is based on the value of the fund's assets therefore it works similarly a mutual fund. (Pörssisäätiö, 2015, Pankki-opas, 2021.)

In this thesis returns are calculated by using last date values in each month from MSCI World Index (EUR). Euro values are used since most of the funds in the sample have announced that they follow MSCI World (EUR) index version. However, Evli Global and Evli Global X have announced that their benchmark is the MSCI World (USD). According

to personal e-mail (2021) received from Evli's asset management, Evli's funds use the MSCI World (USD) as a base benchmark and convert those values to euros by using their own exchange rates. This thesis uses the returns calculate from the MSCI World (EUR) index too for Evli's funds since Evli uses converted euro returns for instance in funds annual reports. That may result in some differences between the return calculations of the thesis and Evli's brochures calculation since Evli uses different currency rates when converting dollars to euros. With the other funds there are not that problem since other studied funds have either announced that they follow MSCI World (EUR) Index or have not announce the currency of the index at all. In the situation when index currency has not been announced this thesis uses the euro version of the index.

Most of the funds studied are announced that their official benchmark is the MSCI World TR or MSCI World TR Net Index which means according to e-mail received from MSCI that index measure the price performance of markets with dividends and these dividends are reinvested after the deduction of withholding taxes. However, according to the same e-mail our data regarding the returns should be the same as MSCI World TR Net. That is why in the appendices 1 all the funds have the MSCI World Index without TR or Net mentioned as their benchmark.

Furthermore, the period of this thesis is quite short the studied measurements such as tracking error and Sharpe ratios are calculated for the whole studied period and not for one year which is a more traditional way with those measurements. Please notice too that Morningstar sustainability globes for each fund are observed in early 2021 which means that some fund may have has a different rating in 2018-2020.

6 Empirical results

This chapter presents the empirical results of this thesis and introduces results regarding the research questions. Firstly, the results regarding the activity and Active Share of studied funds are reported. Furthermore, the chapter presents the tracking errors together with Active Share. Later on, results regarding the performance during the pandemic and performance together with Active Share are presented.

6.1 Active Share

The first research question in this thesis is to examine how active global and responsible funds are and are they managed actively as they promise in their brochures and key investor information documents. According to Petäjistö (2021) funds that have possibilities to invest in large markets should be active therefore the Active Share should be over 60 % which were defined as the lowest bound for active management by Cremers and Petäjistö (2009). Basing on that it can be assumed that since all studied funds invest globally they should be managed actively and exceed the Active Share of 60 %.

However, various studies (Cremers & Petäjistö, 2009; Petäjistö, 2013; Morningstar, 2016) have found that although funds have opportunities to invest in large markets such as Europe or U.S they failed to exceed the lowest bound for active management and there are closet indexers in the markets. Furthermore, Chen and Scholtens 2018 studied that closet-indexing happens among responsible funds too. Basing on previously mentioned studies it is possible that although markets are large for all studied funds there may still be closet indexers in the sample.

Below, Table 4 is presenting all studied funds and their Active Shares in different time periods. Furthermore, the table presents the average Active Share for each fund for the whole studied period and the whole sample average for each different period.

Table 4. Active Share results 31.12.2018-30.06.2020

GLOBAL AND RESPONSIBLE EQUITY FUNDS	ACTIVE SHARE				AVERAGE
	31.12.2018	30.06.2019	31.12.2019	30.06.2020	31.12.2018- 30.06.2020
Nordea 1-Global Climate and Environment Fund	98.08%	97.53%	97.18%	96.86%	97.41%
Carnegie Global	97.62%	97.67%	97.62%	95.58%	97.12%
Evli Global	94.84%	94.10%	94.87%	92.96%	94.19%
Evli Global X	94.88%	94.09%	94.83%	92.88%	94.17%
Danske Invest Sustainability Equity Fund	93.37%	92.72%	93.40%	94.52%	93.50%
Sparinvest SICAV Ethical Global Value	90.06%	90.35%	90.85%	91.86%	90.78%
Swedbank Robur Transition Global	87.48%	87.25%	88.67%	87.42%	87.71%
DNB Fund Global ESG	85.55%	85.99%	86.50%	81.29%	84.83%
Aktia Global	83.58%	83.58%	81.61%	80.19%	82.24%
Nordea World Fund	73.67%	74.68%	73.16%	70.49%	73.00%
AVERAGE	89.91%	89.80%	89.87%	88.41%	89.50%

As can be seen from Table 4 all of the studied funds are actively managed, and they invest actively as they promise in their documents. These results are in line with Petäjistö (2021) who stated that funds that have possibilities to invest in large markets should be active. When these results are compared to results from Cremers and Petäjistö (2009); Petäjistö (2013); Morningstar (2016) and Chen and Scholtens (2018), it is quite surprisingly none of the studied funds are not revealed to be closet-indexers. Even the fund with the lowest Active Share, Nordea World Fund, exceeds the bound of 60% fairly by average Active Share of 73.00 % and the lowest Active Share of 70.49 %.

Table 4 shows that 60 % of studied funds have Active Share over 90 %. The most active fund in terms of Active Share during both the whole studied time period and in a single time period is Nordea 1 –Global Climate and Environment fund with an average Active Share of 97.41 % and the highest single Active Share of 98.08 %. In the sample, all funds are considered to be truly active in terms of definition introduced by Cremers and Petäjistö (2009) who state that the bound for low Active Share is 60 %.

The reason behind high Active Shares may relate to the fact that all studied funds were globally investing, and their benchmark index is the MSCI World. The MSCI World Index

includes over 1600 constituents during the studied time-period (2018: 1633 constituents; 2019: 1655 constituents; 2019: 1646 constituents & 2020: 1603 constituents). Since the number of stock holdings for studied funds is on average approximately 67 it can be assumed that the one reason why none of the studied funds is closet indexer is that their benchmark index is large. This means that fund will differ from their benchmark at least in terms of the number of stocks hold since the benchmark includes much more stocks than funds are holding. It can be assumed that this may result higher (lower) Active Share meaning that fewer stock holdings may result higher Active Share vice versa. Since this may be the reason behind the results, next the Active Share and stocks holdings of funds are examined more closely.

The distribution across the average Active Share and an average number of stocks hold by the fund during the studied time are presented in Table 5:

Table 5. The distribution of the Active Share and the number of stocks hold by fund on average

The number of stocks hold (on average)								
Active Share (Avg.)(%)	0-20	20-40	40-60	60-80	80-100	100-120	120-140	All
Number of global and responsible funds								
90 – 100	1	2	3					6
80 – 90		2		1				3
70 – 80						1		1
60 – 70								
0 - 60								
All	1	4	3	1		1		10

Table 5 suggests that the previously mentioned assumption regarding Active Share and the number of stocks holding hold true. As can be seen the funds that hold 80 stocks or under have achieved higher Active Share than funds with more stock holdings. As can be noticed fund with over 80 stocks hold (Aktia Global; Nordea World) has resulted in lower

Active Share. For instance, when looking closer for Nordea World Fund which has the most holdings (135 on average) it can be seen that it has achieved the lowest Active Share, therefore, it can be assumed that funds with the highest number of stock holdings will have the lowest Active Share. This observation is in line with Cremers & Petäjistö (2009) who find that number of stocks have statistically significant relationships with Active Share although that relationship is economically not strong and not linear. Cremers and Petäjistö (2009) find that when the number of stocks increases the Active Share decrease, this is in line with the thesis results too.

According to Cremers and Petäjistö (2009) funds with higher Active Share tend to be smaller and funds with low Active Share tend to be larger in terms of assets. The results are partially in line with Cremers and Petäjistö (2009) since the fund with lowest amount of assets under holding have high Active Shares (Evli Global, Evli Global X and Carnegie Global) and fund with second highest value (Nordea World Fund) generate the lowest Active Share.

However, the results show that the fund with the highest Active Share (Nordea 1-Global Climate and Environment Fund) has the most assets under holding too. This result is not in line with what Cremers and Petäjistö (2009) find in their study. Table 6 below presents the distribution of the average Active Share and total values of the fund across the whole studied time period:

Table 6. The distribution of the Active Share and values of the funds on average

Active Share (avg.)(%)	Average value of the fund (Million €)					
	0-100	100-200	200-300	300-400	400-500	500 < All
	Number of global and responsible funds					
90 – 100	2	2	1		1	6
80 – 90	2			1		3
70 – 80					1	1
60 – 70						
0- 60						
All	4	2	1	1	2	10

Table 6 shows that smaller funds tend to have higher Active Share. This distribution is partially in line with Cremers & Petäjistö (2009) who find that funds with assets less than 200 million dollars have high Active Share. However, as mentioned interestingly that the fund with the most assets has also the highest Active Share.

Although, it seems that the reason behind the result and high Active Share values are the studied benchmark index it has to be remembered that Cremers and Petäjistö (2009) and Petäjistö (2013) use large benchmark indexes such as Russel 2000, Russel 3000, and Wilshire 5000 too and find closet-indexing. However, Cremers and Petäjistö (2009) calculate Active Share by using all nineteen indexes in their sample and use the one that has the lowest Active Share. Furthermore, in this thesis the sample is much smaller, and focus on global and responsible funds.

6.2 Active Share & Tracking Error

The Active Share results suggest that global and responsible equity funds are actively managed, and they do what they promise. According to Petäjistö (2013) to get the complete picture of active management the tracking errors need to be calculated too. Active Share itself does not give the whole picture about active management since it is a reasonable proxy for stock selection and tracking error is a proxy for systematic factor risk and factor timing (Cremers & Petäjistö, 2009; Petäjistö, 2013). Values of the Tracking errors for the whole studied period are reported in Table 7 below:

Table 7. Tracking errors

GLOBAL AND RESPONSIBLE EQUITY FUNDS	Tracking Error (%) 31.12.2018- 30.06.2020
DNB Fund Global ESG	6.76
Carnegie Global	3.38
Swedbank Robur Transition Global	3.13
Sparinvest SICAV Ethical Global Value	1.70
Aktia Global	1.39
Evli Global	1.35
Nordea World Fund	1.32
Danske Invest Sustainability Equity Fund	1.31
Evli Global X	1.24
Nordea 1-Global Climate and Environment Fund	1.02
AVERAGE	2.26

Table 7 presents that there are differences between funds in terms of tracking errors. According to Puttonen and Repo (2011: 103), the definition of good and bad or low and high tracking error is not a simple task and according to Parametric (2018), the definition of good tracking error depends on the type of portfolio. Active manager typically has large tracking errors since they aim to generate excess returns through active positioning against the benchmark. This means that with active managers it is common that portfolios may results return differences more than 2 % in a month. According to Puttonen & Repo (2011: 103), it is more probable that fund manager has to take tracking error to beat the benchmark. On the other hand, the high tracking error may result in the fund lose to its benchmark.

One definition for values of tracking error is made by Stein (2014). According to Stein (2014) funds with a tracking error value of 0,5 % are index funds and their return differences in each month are small. Funds with a tracking error of 2 % are examples of funds with risk-controlled fund managers. In these funds, returns in each month tend to vary between – 1 % and 1 %. Funds with 5 % tracking errors are considered to be actively managed and the manager pays little attention to risk. According to Stein (2014), these funds can encounter return differences over 3 % in a month. When a fund encounters a

large deviation in returns each month the tracking error is typically 10 % and it is an example of the fund with undiversified single stock holding. According to the results from Table 7 and definitions of Stein (2014), it can be seen that none of the studied funds have tracking errors close to 0,5 %, therefore, none of the funds studied is index fund in terms of tracking errors. However, only one fund (DNB Global ESG) can be considered as an actively managed fund and practically the rest of the sample can be considered more or less as funds with risk-controlled managers.

However, as mentioned earlier Active Share is a reasonable proxy for stock selection and tracking error for factor bets. As Petäjistö (2013) states both Active Share and tracking error are needed to get a comprehensive picture of active management. By using these proxies Cremers and Petäjistö (2009) illustrate figure 1 which presents the two dimensions of active management:

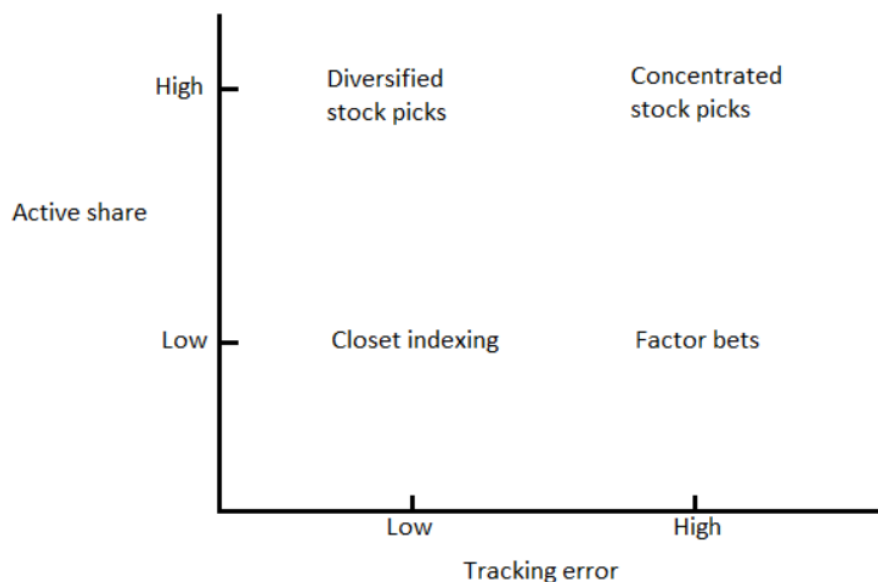


Figure 1. Different types of active and passive management (Cremers & Petäjistö, 2009)

A Combination of the results regarding Active Share and tracking error is present below in figure 2:

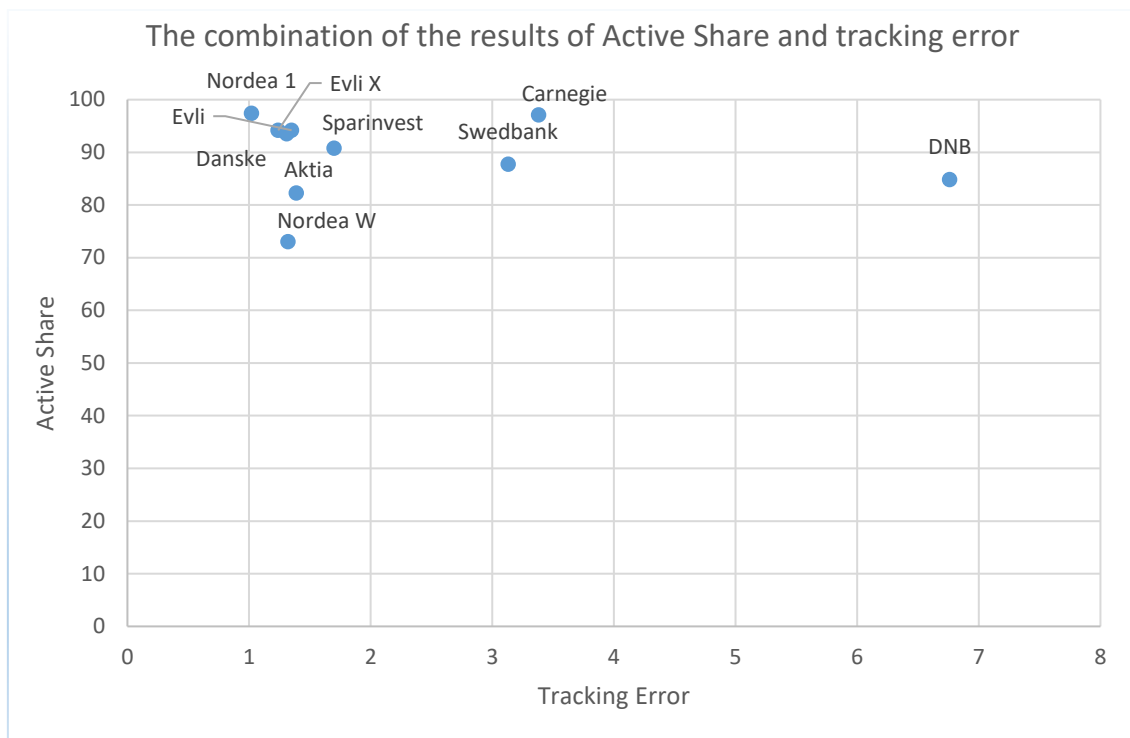


Figure 2. The combination of the results of Active Share and tracking error

Figure 1 and figure 2 suggest that most of the studied funds are considered to be diversified stock pickers with high Active Share and tracking error between 1 % and 2 % meaning that returns may deviate a couple percent in each month on average (Stein, 2014). According to Cremers and Petäjistö (2009), this type of fund can be very active with low tracking error since its stock selection within industries may lead to major deviations away from the index portfolio and produce a high Active Share. The fund will have low tracking error if it simultaneously diversifies its active positions across industries and does not bear any systematic risk relative to the benchmark. However, since fund manager can outperform the benchmark only by deviating from it according to Cremers and Petäjistö (2009) the high Active Share for diversified stock pickers indicate that these funds are actively targeting to outperform. As can be deduced all funds considered as diversified stock pickers can be considered truly active too.

Although one fund seems to have high tracking error and high Active Share, that fund is considered to be a diversified stock picker too since tracking error is still quite low

(6,76 %) since according to Petäjistö (2013) tracking error of 5 % is still quite low and tracking error of 10 % is in the middle of the scale. However, either Cremers & Petäjistö (2009) or Petäjistö (2013) define actual boundaries for high tracking error values. Basing on the results both from Active Share calculations and tracking error calculations it can be concluded that all studied funds are truly active, do what they promise, and there are not closet indexers in the sample.

The distribution of funds across the average Active Share and tracking error range during the studied time period are introduced in Table 8. As can be seen from Table 8 most of the funds studied (70 %) have tracking errors between 1 % and 2 % and Active Share between 70 % - 100 %. Table 8 below suggest that the sample are not distributed a lot in terms of tracking error values.

Table 8. The distribution of the average Active Share and tracking error

Active Share (avg.) (%)	Tracking Error %							All
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	
Panel A: Number of global and responsible funds								
90 – 100	5	1						6
80 – 90	1	1				1		3
70 – 80	1							1
60 – 70								
0 - 60								
All	7	2				1		10

6.3 Performance

The second research question in this thesis is to examine can global and responsible equity funds generate excess returns. As presented earlier several studies (Malkiel, 1995;

Gruber, 1996; Carhart, 1997; Wermers, 2000) have found that passive funds outperform active funds. However, Cremers & Petäjistö (2009) find that funds with the highest Active Share beat their benchmarks and as the results show all the funds studied received truly high Active Shares. This is why this thesis examines are these global and responsible funds outperforming the benchmark and are the funds able to generate excess returns. Furthermore, studies such as Shukla & Singh (1997) & Gallagher et al. (2017) find that global equity funds have abilities to outperform their global benchmarks.

Returns for funds and for the MSCI World are calculated as percentage return and the results from the highest return to lowest, are reported in Table 9 below. The excess return is the difference between the fund and the benchmark, so it is the return that exceeds the return achieved by the MSCI World Index.

Table 9. Funds and MSCI World Index returns 31.12.2018 – 30.06.2020

GLOBAL AND RESPONSIBLE EQUITY FUNDS	Return (%)	MSCI World (EUR)(%)	EXCESS RETURN (%)
	31.12.2018 - 30.06.2020	31.12.2018 - 30.06.2020	31.12.2018 - 30.06.2020
Swedbank Robur Transition Global	36.26%	22.45%	13.81%
Nordea 1-Global Climate and Environment Fund	35.01%	22.45%	12.56%
Aktia Global	28.64%	22.45%	6.19%
Danske Invest Sustainability Equity Fund	24.07%	22.45%	1.62%
Nordea World Fund	20.73%	22.45%	-1.72%
DNB Fund Global ESG	19.35%	22.45%	-3.10%
Evli Global X	17.24%	22.45%	-5.21%
Evli Global	13.66%	22.45%	-8.79%
Sparinvest SICAV Ethical Global Value	1.43%	22.45%	-21.02%
Carnegie Global	0.46%	22.45%	-21.99%
AVERAGE	19.69%	22.45%	-2.77%

Returns from Table 9 shows that 40% of the sample outperform their benchmark during the studied time period. Furthermore, two funds have returns under 1.50 % in the whole period which means that an average monthly return for those funds is under 0.10 %. Those results can be considered truly weak since the benchmark's return were 22.45 % in the whole period with an average monthly return of 1.18 %. On average the sample underperforms against the index of almost 3 % during the studied period.

When excess returns are divided in three series: the first half of 2019, the second half of 2019, and the first half of 2020. It can be seen that there are more outperformers in the

sample. The excess returns during the first half of 2019, the second half of 2019, and the first half of 2020 are presented in the figure 3 below:

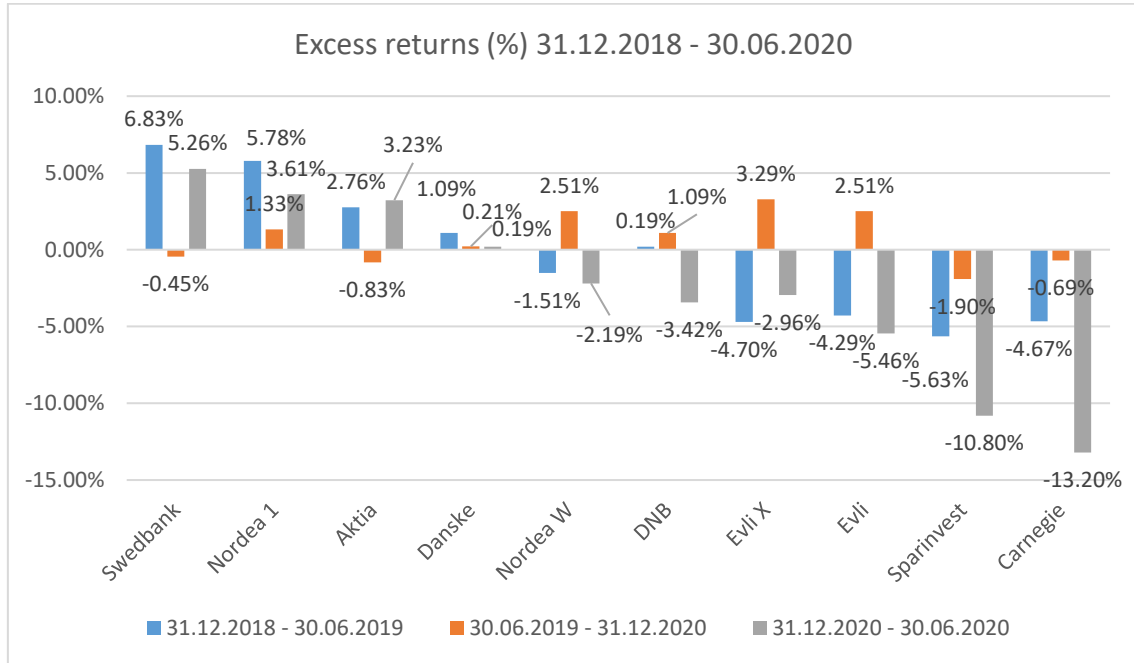


Figure 3. Excess returns 31.12.2018 – 30.06.2020

Figure 3 presents that 80 % of studied funds have been able to beat the benchmark at least during a short period of time. Furthermore, it can be seen that excess returns vary during the studied period. Figure 3 point out that there are two funds that have been able to outperform the benchmark in each studied period. Besides the outperformers the result shows that two funds cannot defeat the benchmark at any studied time.

Besides the total returns the risk-adjusted returns were calculated too by using the Sharpe ratio. These calculated ratios are reported below in Table 10.

Table 10. Sharpe ratios

GLOBAL AND RESPONSIBLE EQUITY FUNDS	SHARPE RATIO 31.12.2018 -30.06.2020
Swedbank Robur Transition Global	0.48
Nordea 1-Global Climate and Environment Fund	0.37
Aktia Global	0.32
Danske Invest Sustainability Equity Fund	0.28
Nordea World Fund	0.27
DNB Fund Global ESG	0.24
Evli Global X	0.24
Evli Global	0.20
Sparinvest SICAV Ethical Global Value	0.10
Carnegie Global	0.09
AVERAGE	0.259

Table 10 suggest that the result regarding Sharpe ratios is similar to total returns results for whole studied period. Funds with the highest excess returns in Table 9 received the best Sharpe ratios too. Furthermore, Sharpe ratios were lowest for the poorest performers. However, based on Table 10 it can be seen that all funds studied resulted in positive Sharpe meaning that they were a better investment in relation to the riskless investment which in this thesis was 3-month Euribor.

The results suggest that during the whole studied period the global and responsible funds cannot generate excess returns at least on average level. However, as figure 3 presented there are funds that were able to beat their benchmarks either once (30 %), twice (30%), or continuously (20 %). This result suggests that in certain situations there may be grounds for pay active management. However, since the sample of this thesis is small it cannot be concluded that this holds when the sample is larger or when the studied time period is longer. Basing on the average of the results, the results of the thesis are in line with several studies (Malkiel, 1995; Gruber, 1996; Carhart, 1997; Wermers, 2000) that find that active funds do not generate excess returns. These results are in line too with the master thesis written by Haavisto (2018). In his thesis, he studies Active Share and performance for Finnish funds and found that only 20 % can generate excess returns.

Haavisto (2018) uses the same length time period as this thesis so from that perspective results can be comparable.

Although results present that 60 % of the funds underperform during the whole studied period, an interesting observation can be made when examining the total returns as separated into three different time periods: the first half of 2019, the second half of 2019, and the first half of 2020. Total returns during three different time period are presented below in figure 4:

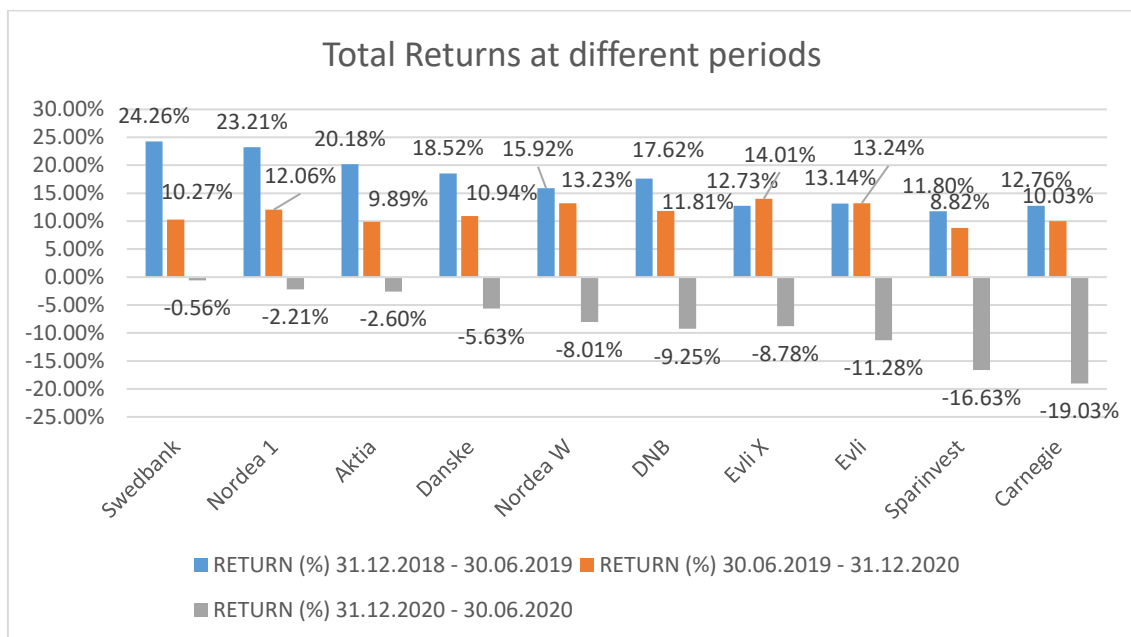


Figure 4. Total returns at different periods

As previously presented 40 % of the funds studied defeat the benchmark index between 31.12.2018 – 30.06.2020. However, as figure 4 illustrate when results are divided into three different series it can be found that there are major differences between the total returns of the funds. Furthermore, all studied funds generate negative returns during the first half of 2020. Next, those differences are examined more.

6.4 Performance during the crisis

Table 11 below reported the combined total returns and excess returns from the whole year 2019 and the total returns from the first half of the year 2020:

Table 11. Funds returns in 2019 and 2020

GLOBAL AND RESPONSIBLE EQUITY FUNDS	RETURN (%)	EXCESS RETURN (%)	RETURN (%)
	2019	2019	2020
Swedbank Robur Transition Global	37.02%	7.00%	-0.56%
Nordea 1-Global Climate and Environment Fund	38.06%	8.04%	-2.21%
Aktia Global	32.07%	2.05%	-2.60%
Danske Invest Sustainability Equity Fund	31.48%	1.46%	-5.63%
Nordea World Fund	31.25%	1.23%	-8.01%
DNB Fund Global ESG	31.51%	1.49%	-9.25%
Evli Global X	28.53%	-1.49%	-8.78%
Evli Global	28.11%	-1.91%	-11.28%
Sparinvest SICAV Ethical Global Value	21.66%	-8.36%	-16.63%
Carnegie Global	24.07%	-5.95%	-19.03%
AVERAGE	30.38%	0.36%	-8.40%

Returns in Table 11 presents that, in the period of 2019, 60 % of funds defeat their benchmark whereas during the whole studied period only 40 % of funds outperform. Furthermore, on average studied funds seems to be able to generate excess returns during 2019. However, as presented Table 11 and in figure 4, returns from each fund in the first half of 2020 are negative. Therefore, it seems that one reason behind quite weak results regarding performance in the whole studied period seems to be the year 2020.

As previously mentioned the COVID-19 and the worldwide pandemic started strongly occurring in early 2020. The pandemic results in major decreases in all major indexes such as S&P 500, Dow Jones, Nasdaq, Germany's DAX for instance. According to BBC (2020), for instance on March 17, S&P 500 dropped 11.9 %, Nasdaq 12.3 %, Dow Jones 12.9 %, and DAX more than 5.3 %. This steer this thesis to the research question number three which ask can the actively managed and responsible funds outperform the benchmark during the crisis.

There have been studies that have examine how mutual funds survive for instance in times of recession and crisis. Studies have found that an active mutual fund may perform

better during undesirable times than its benchmark. For instance, Moskowitz (2000) ask in his discussion paper, do funds provide a hedge against undesirable states. Moskowitz's (2000) results show that during recessions active mutual funds generate an additional 6 % per year when the return on the market is – 1.5 % per month during the recessions. Furthermore, Kosowski (2006) study domestic equity funds from the U.S during recessions and expansions between 1962 to 2005 and find that during recessions equity funds do not underperform against their benchmarks. According to Kosowski (2006), the findings regarding equity funds underperforming are driven by expansion times and not recession times. Results suggest that traditional unconditional performance measures underestimate the value added by the active manager in recessions. Ferson and Warther (1996) describe these traditional unconditional performance measurements as measurements that use historical average returns when estimating expected performance. These measures do not consider the fact that risk and expected returns may vary with the state of the economy.

Furthermore, the performance of active funds during the financial crisis of 2008 is studied by Petäjistö (2013). According to his study the closet indexers (-0.83 % per year net of expenses), factor bets funds (-1.72 %), moderately active funds (-0.32 %) and the concentrated funds (-2.59 %) underperformed against the benchmarks. However, the active stock pickers are able to outperform the benchmark by 0.97 % a year. As previously presented, in this thesis all of the studied funds are diversified stock pickers (cf. Figure 1; Cremers & Petäjistö, 2009) meaning that it can be expected that funds in the sample have abilities to outperform the benchmark during this crisis too.

The results have been quite similar when responsible and sustainability funds have been studied. Nofsinger & Varma (2014) examine the performance of socially responsible equity funds from the U.S between 2000 to 2011 during the crisis and non-crisis periods. The result shows that socially responsible funds slightly underperform to conventional funds during the non-crisis period but outperform during the crisis periods by an annualized 1.18 % but this outperforming is only nearly significant at the 10 % level. However,

when studying return alphas, the study finds that responsible funds underperform to conventional funds during the non-crisis period by 0.67 to 0.95 % (statistically significant at 10 % level) but in crisis periods socially responsible funds outperform conventional ones by 1.61 - 1.70 % (statistically significant at 5 % level). According to the authors, this outperforming is driven by funds that focus on shareholders advocacy and ESG issues.

Similar results are achieved by Becchetti, Ciciretti, Dalò & Herzel (2015). Becchetti et al. (2015) examines the performance of socially responsible funds and conventional funds between 1992 to 2012. This time period includes both the dot-com crisis and the global financial crisis. According to the authors, results show that socially responsible funds outperform conventional funds in the financial crisis. The result is statistically significant in all sizes and areas studied except North America where the results are not statistically significant. However, in the dot-com crisis, these funds were not superior performers. According to the authors, this can be the result of these funds' higher exposition to high-tech stocks.

As mentioned in the introduction, according to Pastor and Vorsatz (2020), their working paper is the first study that analyze the performance and fund flows of equity mutual funds during the COVID-19 pandemic. They study actively managed equity funds from the U.S and find that most active funds underperform against their benchmarks which were against the hypothesis which states that active funds should outperform their benchmarks in recessions. Furthermore, they find that funds with higher Morningstar sustainability rating (4 -5 globes) perform better than funds with a lower ratings (1 -2 globes) during the crisis.

The third research question in this thesis to examine the possible outperforming of actively managed and responsible funds during the crisis. To examine this research question, this thesis combines the Active Share, excess returns, and Morningstar sustainability globes, and those results are reported in Table 12 below.

Table 12. Excess returns, Active Share, and sustainability ranking

GLOBAL AND RESPONSIBLE EQUITY FUNDS	EXCESS RETURN (%) 2020	ACTIVE SHARE (Avg.)(%) 31.12.2018- 30.06.2020	MORNINGSTAR SUST. GLOBES
Swedbank Robur Transition Global	5.21%	87.71%	5
Nordea 1-Global Climate and Environment Fund	3.56%	97.41%	5
Aktia Global	3.17%	82.24%	4
Danske Invest Sustainability Equity Fund	0.13%	93.50%	5
Nordea World Fund	-2.24%	73.00%	4
DNB Fund Global ESG	-3.48%	84.83%	3
Evli Global X	-3.01%	94.17%	3
Evli Global	-5.52%	94.19%	4
Sparinvest SICAV Ethical Global Value	-10.86%	90.78%	3
Carnegie Global	-13.26%	97.12%	5
AVERAGE	-2.63%	89.50%	4.1

Results in Table 12 present that 40 % of the funds have generated an excess return and beat their benchmark. The benchmark, MSCI World Index return in early 2020 was - 5.77 %. Regarding the research question the results suggest that actively managed and responsible funds do not outperform the benchmark at least at average level. Furthermore, this thesis compares are the fund with higher Active Share performing better than a fund with lower Active Share during this pandemic. Figure 5 illustrate the combination of the excess returns and the average Active Share. Results suggest that there is not clear evidence that higher activity will lead to outperforming since for instance the fund with second highest Active Share (Carnegie Global) has the worst returns and the fund with lowest Active Share (Nordea World Fund) has returns which are quite average.

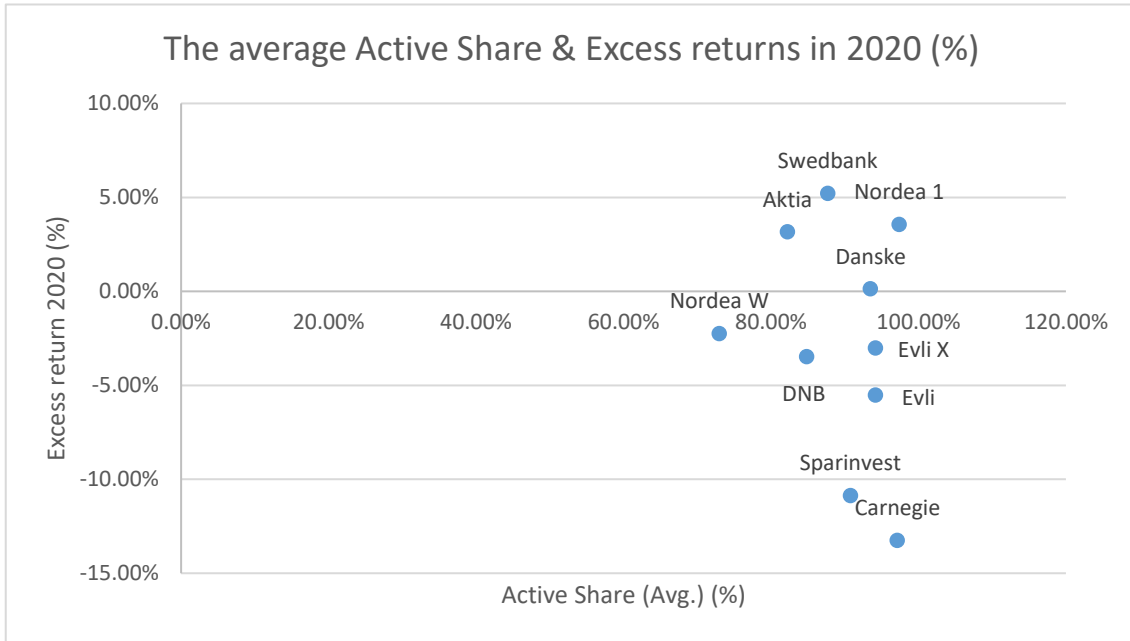


Figure 5. The average Active Share and excess returns in 2020

An interesting observation can be made when looking closer at Table 12 result regarding returns and Morningstar Sustainability globes received by funds. Results suggest that funds with higher sustainability ratings are performing better during the pandemic. This can be seen when comparing those four funds that defeat their benchmark since three of them have 5 sustainability globes. On the other hand, funds with a lower rating (3 sustainability globes) have performed poorly. The similar observation can be made with the results from Table 9 since the four funds that were able to generate excess returns are exactly the same funds than the outperformer funds in Table 12 suggesting that high sustainability rating tend to lead better performance. There is one exception since the fund with the 5-globe rating is the poorest performer in both Table 9 and Table 12.

Results from Table 12 are in line with Pastor and Vorsatz (2020) since results do not suggest that active funds in terms of Active Share are performing better than benchmark at least on average. Since all the studied funds are considered truly active and diversified stock pickers the result is partially in line with Petäjistö's (2013) result since all active stock pickers do not outperform against the benchmark. Furthermore, results present

that funds with a high sustainability rating from Morningstar perform better than funds with a low rating from Morningstar during the crisis. That result support the findings of Pastor and Vorsatz (2020). Furthermore, since the result suggest that responsibility may lead to better performance during a crisis the result is in line too with Nofsinger & Varma (2014) and Becchetti et al. (2015).

However, as previous results from the whole studied time period presented there are four funds that were able to generate excess returns and beat the benchmark both during the pandemic and during the whole studied time-period and two best of funds generate an average monthly return over 1.80 %. This means that at least some of the global and responsible funds are able to beat their benchmarks and generate excess returns at least during a short period of time. This leads to last research question which state that can Active Share predict the fund performance? Meaning that are funds with higher Active Share performing better than funds with low Active Share?

6.5 Active Share & Performance

According to Cremers and Petäjjistö (2009), the funds with the highest Active Share significantly outperform their benchmark, and funds with the lowest Active Share underperform their benchmarks. Table 13 below reported results regarding Active Share and funds excess returns.

Table 13. Active Share and excess returns 31.12.2018 – 30.06.2020

GLOBAL AND RESPONSIBLE EQUITY FUNDS	Active Share (Avg.)(%) 31.12.2018- 30.06.2020	EXCESS RETURN (%) 31.12.2018 - 30.06.2020
Nordea 1-Global Climate and Environment Fund	97.41%	12.56%
Carnegie Global	97.12%	-21.99%
Evli Global	94.19%	-8.79%
Evli Global X	94.17%	-5.21%
Danske Invest Sustainability Equity Fund	93.50%	1.62%
Sparinvest SICAV Ethical Global Value	90.78%	-21.02%
Swedbank Robur Transition Global	87.71%	13.81%
DNB Fund Global ESG	84.83%	-3.10%
Aktia Global	82.24%	6.19%
Nordea World Fund	73.00%	-1.72%

Table 13 presents that in general high Active Share does not seem to predict returns since only 20 % of funds that have Active Share over 90 % have generated excess returns. However, the most active fund indeed generates an excess return. Interestingly fund with the second-highest Active Share has the worst returns of all funds. Furthermore, 50 % of funds with Active Share under 90 % have generated excess returns so basing on the result it suggests that high Active Share cannot predict the performance. This can also be seen when the distribution of the Active Share and funds returns are illustrated in figure 6 and figure 7 below.

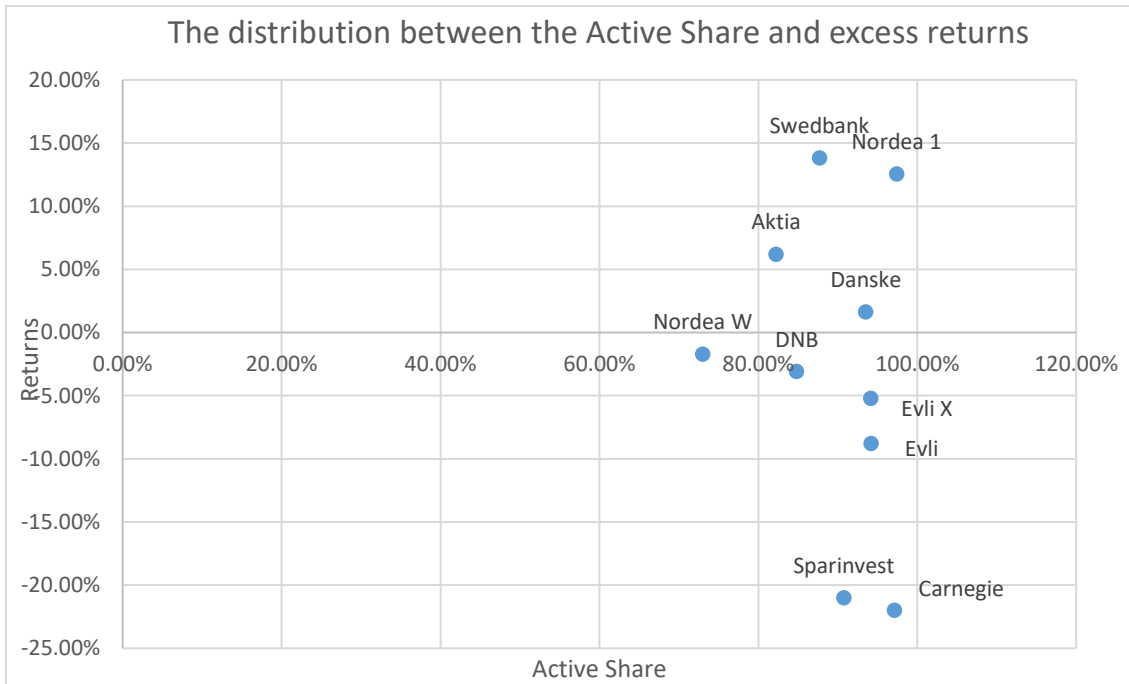


Figure 6. The distribution between the Active Share and excess returns

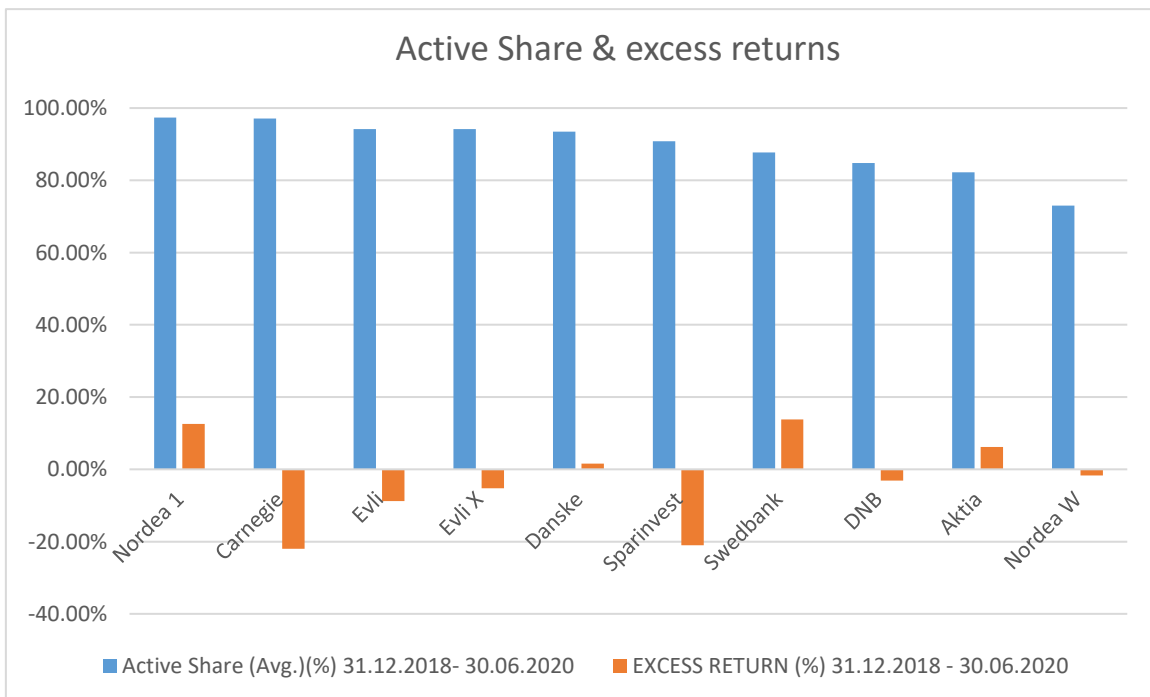


Figure 7. Active Share & excess returns

Figure 6 and figure 7 above suggest that there is no connection between high Active Share and excess returns generate. Furthermore, the result in Table 13 and figures 6 and

7 suggest that is quite random how returns are distributed among funds with high (low) Active Share. Basing on the results it can be deduced that high Active Share does not predict the fund performance and results are not in line with Cremers and Petäjistö (2009) or Petäjistö (2013).

The result is in line with results from Muller & Ward (2011). Muller and Ward (2011) study the relationship between the high Active Share and fund returns. In their study authors use sector holdings instead of individual stock holding in the Active Share calculation but according to study this produce comparable results. Muller and Ward (2011) do not find relationship between the level of active share and the risk adjusted performance. Furthermore, Muller and Ward (2011) state that some funds with high Active Share indeed generate superior returns but there are many funds which fail to generate these returns. As can be seen this result is in line with the result of this thesis.

Furthermore, according Cremers and Pareek (2016) not all of the funds with high Active Share are able to outperform their benchmarks on average but only those funds with patient investment strategy. Results from Cremers and Pareek (2016) suggest that funds that trade frequently generally underperform against benchmark nevertheless having high Active Share. The results suggest that there seem to be a group of fund manager with substantial investment skill which can be seen in that they stick with their convictions and combine the high Active Share with infrequent trading. These results from Cremers and Pareek (2016) may explain why some funds with high Active Share clearly underperform in this thesis. However, without further research, it cannot be concluded.

7 Conclusions

The purpose of this thesis was to examine how active global and responsible equity funds truly are in terms of Active Share and do these responsible funds do what they promise. Besides Active Share this thesis uses the tracking error since according to Cremers and Petäjistö (2009), using these two dimensions together illustrate more comprehensive picture of active management.

The results show that all studied funds were active in terms of Active Share. The best funds have Active Share over 97 % on average and 60 % of funds studied exceeds the Active Share over 90 %. Furthermore, even the fund with the lowest Active Share exceeds the Active Share over 70 % on average. Cremers and Petäjistö (2009) define that the lowest bound for active management in terms of Active Share is 60 % so it can be concluded that all studied funds are truly active. In terms of tracking error all studied funds revealed to be a diversified stock pickers which means that despite the low tracking errors all funds are targeting outperforming and can be considered as truly actively managed funds. Basing on the results of Active Share and tracking error calculations this thesis concluded that there are not closet indexers in the sample, funds do what they promise, and all studied funds are truly active.

This thesis examined the performance of each fund in order to find are global and responsible funds able to generate excess returns. By calculating the total returns for each fund, the results present that on average the funds are not able to generate excess returns. However, there are funds that outperform their benchmarks once, twice, or continuously during the studied period. Therefore, that result suggest that there are grounds for pay active management in certain situations. It would be an interesting subject to examine that are these funds outperforming continuously and examine the possible drivers of the excess returns. This topic should be further studied with the expanded time period.

The third research question in this thesis regards the funds outperforming during the crisis. The results provide mixed evidence regarding the performance of the actively managed and responsible funds. However, the results suggest that funds with a high sustainability rating (5-4) received by Morningstar tend to lead to better performance during the crisis than lower ratings (3). This observation is in line with Pastor and Vorsatz's (2020) results. The result support the findings from Pastor and Vorsatz's (2020) and suggest that it may be useful for investor to exploit sustainability ratings provided by Morningstar when choosing funds.

The possible predicting power of Active share introduce by Cremers & Petäjistö (2009) were studied and basing on the results this thesis cannot conclude that higher Active Share would result in higher returns since the results were mixed. The fund with the highest Active Share indeed outperformed and generate excess returns over 12.50 % during the studied time period but correspondingly the fund with the second-highest Active Share was the worst performer of all funds. Results of thesis are in line with Muller & Ward (2011) and Cremers and Pareek (2016). According to Cremers and Pareek (2016), the reason behind underperforming despite the high Active Share can be the funds' trading activity. Examining the trading activity of studied funds can provide explanations for the results of this thesis and therefore it would deserve further research.

This thesis pursues to expand the literature regarding activity of responsible funds by using Active Share. Chen & Scholtens (2018) study this subject by using tracking error and this thesis contribution is to use Active Share together with tracking error. The results show that all global and responsible funds are actively managed and there are no closet indexers in terms of Active Share. Furthermore, this thesis differs from previous studies (e.g., Cremers & Petäjistö, 2009; Petäjistö, 2013; Chen & Scholtens, 2018) since our sample does not include closet indexers. However, in practice, the investor should not choose the fund just because of high Active Share since the results of this thesis suggest that high Active Share does not always lead to better performance.

References

- Aktia. (2021). Määritelmät yleisimmin käytetyille tunnusluville. Retrieved 2021-04-08 from <https://www2.aktia.fi/fi/saasta-ja-sijoita/rahastot/tunnusluvut>
- BBC. (17.03.2020). Coronavirus: US stocks see worst fall since 1987. Retrieved 2021-04-14 from <https://www.bbc.com/news/business-51903195>
- Becchetti, L., Ciciretti, R., Dalo, A. & Herzel, S. (2015). Socially responsible and conventional investment funds: Performance comparison and the global financial crisis. *Applied Economics*, 47(25), 2541-2562. <https://doi.org/10.1080/00036846.2014.1000517>
- Bodie, Z., Kane, A. & Marcus, A. J. (2014). *Investments* (10th global ed.). McGraw Hill Higher Education.
- Bourgi, S. (2018, December 12.). Who Are Institutional Investors?. MutualFunds.com. Retrieved 2021-04-19 from <https://mutualfunds.com/education/who-are-institutional-investors/>
- Cambridge Institute for Sustainability Leadership. (2021). What is responsible investment?. Retrieved 2021-04-13 from <https://www.cisl.cam.ac.uk/business-action/sustainable-finance/investment-leaders-group/what-is-responsible-investment#section-8>
- Carhart, M. (1997). On persistence in mutual fund performance. *The Journal of Finance*, 52(1), 57-82. <https://doi.org/10.1111/j.1540-6261.1997.tb03808.x>
- Chen, X. & Scholtens, B. (2018). The urge to act: A comparison of active and passive socially responsible investment funds in the United States. *Corporate Social – Responsibility and Environmental Management*, 25(6), 1154-1173. <https://doi.org/10.1002/csr.1529>
- Cortez, M., Silva, F. & Areal, N. (2009). The Performance of European Socially Responsible Funds. *Journal of Business Ethics*, 87(4), 573-588. <https://doi.org/10.1007/s10551-008-9959-x>
- Cremers, M. & Pareek, A. (2016). Patient capital outperformance: The investment skill of high active share managers who trade infrequently. *Journal of Financial Economics*, 122(2), 288. <https://doi.org/10.1016/j.jfineco.2016.08.003>

- Cremers, K. & Petajisto, A. (2009). How Active Is Your Fund Manager? A New Measure That Predicts Performance. *The Review of Financial Studies*, 22(9), 3329-3365. <https://doi.org/10.1093/rfs/hhp057>
- Derwall, J., Guenster, N., Bauer, R. & Koedijk, K. (2005). The Eco-Efficiency Premium Puzzle. *Financial Analysts Journal*, 61(2), 51-63. <https://doi.org/10.2469/faj.v61.n2.2716>
- Elo, H. & Saarhelo, J. (2018). *Osakesijoittajan maailmanvalloitus*. Alma Talent.
- Erkkilä, J. (2020, April 26.) Mitä sijoitusrahastojen kuluja mittaava TER-luku kertoo?. SalkunRakentaja. Retrieved 2021-04-22 from <https://www.salkunrakentaja.fi/2020/04/ter-luku-sijoitusrahastot/>
- European Securities and Markets Authority (ESMA). (2016). ESMA updates on supervisory work on closet index tracking. Retrieved 2021-04-07 from <https://www.esma.europa.eu/document/esma-updates-supervisory-work-closet-index-tracking>
- Eurosif. (2021a). Responsible Investment Strategies. Retrieved 2021-04-07 from <http://www.eurosif.org/responsible-investment-%20strategies/>
- Eurosif. (2021b). About us. Retrieved 2021-04-07 from <http://www.eurosif.org/about-us/>
- Person, W. & Warther, V. (1996). Evaluating fund performance in a dynamic market. *Financial Analysts Journal*, 52(6), 20-28. <https://doi.org/10.2469/faj.v52.n6.2037>
- Foster, F. & Warren, G. (2015). Why Might Investors Choose Active Management? *The Journal of Behavioral Finance*, 16(1), 20. <https://doi.org/10.1080/15427560.2015.1000331>
- Fuller, R., Han, B. & Tung, Y. (2010). Thinking about Indices and "Passive" versus Active Management. *Journal of Portfolio Management*, 36(4), 35-47,8,10. <https://doi.org/10.3905/jpm.2010.36.4.035>
- Gallagher, D., Harman, G., Schmidt, C. & Warren, G. (2017). Global equity fund performance: An attribution approach. *Financial Analysts Journal*, 73(1), 56-71. <https://doi.org/10.2469/faj.v73.n1.1>

- Gillman, B. M. (2016, April 26.). Active Share Is a Fuzzy Number. CFA Institute. Retrieved 2021-04-08 from <https://blogs.cfainstitute.org/investor/2016/04/26/active-share-is-a-fuzzy-number/>
- Global Sustainable Investment Alliance (GSIA). (2018). Global Sustainable Investment Review. Retrieved 2021-04-07 from http://www.gsi-alliance.org/wp-content/uploads/2019/06/GSIR_Review2018F.pdf
- Gottesman, A. & Morey, M. (2016). Getting What You Paid For: Using Mutual Fund Governance to Predict the Activeness of Mutual Funds. *Journal of Investing*, 25(1), 25-36. <https://doi.org/10.3905/joi.2016.25.1.025>
- Grinold, R. C. & Kahn, R. N. (1995). *Active portfolio management: Quantitative theory and applications*. Probus.
- Gruber, M. (1996). Another puzzle: The growth in actively managed mutual funds. *The Journal of Finance*, 51(3), 783-810. <https://doi.org/10.1111/j.1540-6261.1996.tb02707.x>
- Haavisto, J. (2018). *Suomeen sijoittavien aktiivisesti hoidettujen sijoitusrahastojen tuotto ja aktiivisuus [Master's thesis, University of Vaasa]*. Retrieved 2021-04-29 from https://osuva.uwasa.fi/bitstream/handle/10024/9668/osuva_8142.pdf?sequence=1&isAllowed=y
- Hale, J. (2017). The Morningstar Sustainability rating. Helping Investors Evaluate the Sustainability of Portfolios. Retrieved 2021-04-07 from <https://investmentsandwealth.org/getattachment/93585dee-2a04-4fd2-bb40-7afbb0739d71/IWM17NovDec-MorningstarSustainabilityRating.pdf>
- Hamilton, S., Jo, H. & Statman, M. (1993). Doing well while doing good? The investment performance of socially responsible mutual funds. *Financial Analysts Journal*, 49(6), 62. <https://doi.org/10.2469/faj.v49.n6.62>
- Hendricks, D., Patel, J. & Zeckhauser, R. (1993). Hot hands in mutual funds: Short-run persistence of relative performance, 1974-1988. *The Journal of Finance*, 48(1), 93. <https://doi.org/10.1111/j.1540-6261.1993.tb04703.x>
- Hyrskel, A., Lönnroth, M., Savilaakso, A. & Sievänen, R. (2020). *Vastuullinen sijoittaja*. Kauppakamari.

- Jegadeesh, N. & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of Finance*, 48(1), 65. <https://doi.org/10.1111/j.1540-6261.1993.tb04702.x>
- Jensen, M. (1968). The Performance of Mutual Funds in the Period 1945-1964. *The Journal of Finance*, 23(2), 389-416. doi:10.2307/2325404
- Kaartinen, A. & Pomell, P. (2012). *ETF: Avain monipuoliseen sijoittamiseen*. Talentum.
- Kempf, A. & Osthoff, P. (2007). The effect of socially responsible investing on portfolio performance. *European Financial Management*, 13(5), 908-922. <https://doi.org/10.1111/j.1468-036X.2007.00402.x>
- Knüpfer, S. & Puttonen, V. (2018). *Moderni rahoitus* (10., uudistettu painos.). Alma.
- Kosowski, R. (2006). Do Mutual Funds Perform When it Matters Most to Investors? US Mutual Fund Performance and Risk in Recessions and Expansions. <http://dx.doi.org/10.2139/ssrn.926971>
- Lehtinen, J. (2021, Januray 23.). "Rahoitusprofessorit pitivät vuosia mysteerinä, miksi sijoittajat laittavat rahansa aktiivisiin rahastoihin" – Vihdoin oppi on mennyt perille, sanoo Antti Petäjistö. *Kauppalehti*. Retrieved 2021-04-07 from <https://www.kauppalehti.fi/uutiset/rahoitusprofessorit-pivat-vuosia-mysteeriina-miksi-sijoittajat-laittavat-rahansa-aktiivisiin-rahastoihin-vihdoin-oppi-on-mennyt-perille-sanoo-antti-petajisto/2772c635-4301-4f0a-9a8a-3ba6556448a6>
- Lounasmeri, S. (2021, January 7.). Yli 150 000 osakesäästötiliä. Pörssisäätiö. Retrieved 2021-04-15 from <https://www.porssisaatio.fi/blog/2021/01/07/yli-150-000-osakesaastotilia/>
- Lönnroth, M., Savilaakso, A., Sievänen, R. & Hyske, A. (2012). *Vastuullinen sijoittaminen*. Finva.
- Malkiel, B. (1995). Returns from investing in equity mutual funds 1971 to 1991. *The Journal of Finance*, 50(2), 549. <https://doi.org/10.1111/j.1540-6261.1995.tb04795.x>
- Mazur, M., Dang, M. & Vega, M. (2021). COVID-19 and the march 2020 stock market crash. Evidence from S&P1500. *Finance research letters*, 38, 101690. <https://doi.org/10.1016/j.frl.2020.101690>

- Morningstar. (2009, September 21.). Millaisia palkkioita rahastoyhtiöt perivät. Retrieved 2019-10-22 from <https://www.morningstar.fi/fi/news/83098/osa-6-millaisia-palkkioita-rahastoyhti%C3%B6t-periv%C3%A4t.aspx>
- Morningstar. (2019). Investing in a Sustainable Future. Retrieved 2019-10-30 from <https://www.morningstar.com/company/esg-investing>
- Moskowitz, T. (2000). Mutual Fund Performance: An Empirical Decomposition into Stock-Picking Talent, Style, Transactions Costs, and Expenses: Discussion. *The Journal of Finance*, 55(4), 1695-1703. Retrieved 2021-04-21 <http://www.jstor.org/stable/222376>
- MSCI. (2021a). MSCI Developed Market Indexes. Retrieved 2021-04-07 from <https://www.msci.com/developed-markets>
- MSCI. (2021b). MSCI World Index (USD). Retrieved 2021-04-07 from <https://www.msci.com/documents/10199/178e6643-6ae6-47b9-82be-e1fc565ededb>
- MSCI (2021c). MSCI World Index data.
- Muller, C. & Ward, M. (2011). Active share on the JSE. *Investment Analysts Journal*, 74(1), 19-28. <https://doi.org/10.1080/10293523.2011.11082538>
- Müller, S., & Weber, M. (2010). FINANCIAL LITERACY AND MUTUAL FUND INVESTMENTS: WHO BUYS ACTIVELY MANAGED FUNDS?**. *Schmalenbach Business Review : ZFBF*, 62(2), 126-153. Retrieved 2021-04-19 from <https://www-proquest-com.proxy.uwasa.fi/scholarly-journals/financial-literacy-mutual-fund-investments-who/docview/219592982/se-2?accountid=14797>
- Möttölä, M. (2016, March 3.). Viidennes Eurooppa-rahastoista peesaa indeksiä. Morningstar. Retrieved 2019-12-07 from <https://www.morningstar.fi/fi/news/147703/viidennes-eurooppa-rahastoista-peesaa-indeksi%C3%A4.aspx>
- Nofsinger, J. & Varma, A. (2014). Socially responsible funds and market crises. *Journal Of Banking & Finance*, 48(C), 180-193. <https://doi.org/10.1016/j.jbankfin.2013.12.016>

- Nordea. (2021). Nordea 1-Global Climate and Environment Fund, BP-EUR, KIID. Retrieved 2021-04-21 from <https://www.nordea.fi/en/personal/our-services/savings-investments/funds/funds-now.html>
- Osipovich, A. (2020, August 31.). Individual-investor boom reshapes U.S. stock market. *Dow Jones Institutional News*. Retrieved 2021-04-19 from <https://search-proquest-com.proxy.uwasa.fi/wire-feeds/individual-investor-boom-reshapes-u-s-stock/docview/2438825286/se-2?accountid=14797>
- Pankki-opas. (2021). SICAV sijoitusrahasto. Retrieved 2021-04-12 from <https://pankki-opas.com/sicav-sijoitusrahasto.html>
- Parametric (2018, September 12.). Is high Tracking Error a Bad Thing?. Retrieved 2021-04-07 from <https://www.parametricportfolio.com/blog/is-high-tracking-error-a-bad-thing>
- Petajisto, A. (2013). Active Share and Mutual Fund Performance. *Financial Analysts Journal*, 69(4), 73-93. <https://doi.org/10.2469/faj.v69.n4.7>
- Principles for Responsible Investment (PRI). (2021). About the PRI. Retrieved 2021-04-19 from <https://www.unpri.org/pri/about-the-pri>
- Puttonen, V. & Repo, E. (2011). *Miten sijoitan rahastoihin* (5., uudistettu painos.). Talentum.
- Pörssisäätiö (2015). Sijoitus rahasto-opas. Retrieved 2021-04-19 from https://www.porssisaatio.fi/wp-content/uploads/2015/05/sijoitus_rahasto_opas_2015_b.pdf
- Ranta-aho, H. (2019, April 12.). Rahastosäästäjä, tunne rahastosi piilokulut – vuosikertomus paljastaa maksut. Taloustaito. Retrieved 2021-04-22 from <https://www.taloustaito.fi/Rahat/rahastosaastaja-tunne-rahastosi-piilokulut--vuosikertomus-paljastaa-maksut/#d112fc31>
- Renneboog, L., Ter Horst, J. & Zhang, C. (2008a). Socially responsible investments: Institutional aspects, performance, and investor behavior. *Journal of Banking & Finance*, 32(9), 1723. <https://doi.org/10.1016/j.jbankfin.2007.12.039>

- Renneboog, L., Ter Horst, J. & Zhang, C. (2008b). The price of ethics and stakeholder governance: The performance of socially responsible mutual funds. *Journal of Corporate Finance*, 14(3), 302-322. <https://doi.org/10.1016/j.jcorpfin.2008.03.009>
- Saario, S. (2016). *Miten sijoitan pörssiosakkeisiin* (12., uudistettu painos.). Talentum Pro.
- Schröder, M. (2004). The performance of socially responsible investments: Investment funds and indices. *Finanzmarkt und Portfolio Management*, 18(2), 122-142. <https://doi.org/10.1007/s11408-004-0202-1>
- Sharpe, W. (1966). MUTUAL FUND PERFORMANCE. *The Journal of Business (pre-1986)*, 39(1), 119. <https://doi.org/10.1086/294846>
- Shukla, R. & Singh, S. (1997). A performance evaluation of global equity mutual funds: Evidence from 1988-95. *Global Finance Journal*, 8(2), 279-293. [https://doi.org/10.1016/S1044-0283\(97\)90020-X](https://doi.org/10.1016/S1044-0283(97)90020-X)
- Somerla, M. (09.04.2020). Korona iski rahastoihin – osakesijoittajilla pitkäjänteinen sijoitusstrategia. Finanssiala. Retrieved 2021-04-14 from <https://www.finanssiala.fi/uutiset/korona-iski-rahastoihin-osakesijoittajilla-pitkajanteinen-sijoitusstrategia/>
- Stein, D. (2014, May). Introducing Tracking Error. Parametric. Retrieved 2021-04-07 from <https://customcore.parametricportfolio.com/File/DownloadContent?filename=Introducing%20Tracking%20Error.CA.pdf>
- Finlands Bank. (2021, February 4.). Suomalaisissa sijoitusrahastoissa olevat sijoitukset ennätyskellisen suuret. Retrieved 2021-04-15 from <https://www.suomenpankki.fi/fi/Tilastot/saastaminen-ja-sijoittaminen/>
- Sushko, V., & Turner, G. (2018). The Implications of Passive Investing for Securities Markets. *BIS Quarterly Review*. Retrieved 2021-04-21 https://www.bis.org/publ/qtrpdf/r_qt1803j.pdf
- The Forum for Sustainable and Responsible Investment (US SIF). (2021). ESG Incorporation. Retrieved 2021-04-07 from <https://www.ussif.org/esg>
- The Forum for Sustainable and Responsible Investment (US SIF) (2020). Report on US Sustainable and Impact Investing Trends 2020. Retrieved 2021-04-13 from

<https://www.ussif.org/files/Trends%20Report%202020%20Executive%20Summary.pdf>

U.S Securities and Exchange Commission (SEC). (2019). Mutual funds. Retrieved 2021-04-07 from <https://www.investor.gov/introduction-investing/investing-basics/investment-products/mutual-funds-and-exchange-traded-1>

Wermers, R. (2000). Mutual fund performance: An empirical decomposition into stock-picking talent, style, transactions costs, and expenses. *Journal of Finance*, 55(4), 1655-1695. <https://doi.org/10.1111/0022-1082.00263>

Appendices

Appendice 1. List of funds

Fund and the benchmark	Investment strategy / Responsibility actions of the fund
Aktia Global / MSCI World Index	<p>Responsibility is a solid part of Aktia's standard investment action. Aktia follows principles of responsible investing in all their funds (Aktia, 2021.)</p> <p>Main methods for responsible investing are excluding certain industries such as tobacco, weapon industry, gambling, and companies which use child labour. Taking into account responsibility issues in investment processes. Furthermore, these methods are responsible ownership and influencing together with impacts on development of society. (Aktia, 2021.)</p> <p>4 Morningstar Sustainability Globes</p> <p>Aktia has signed Principles of Responsible Investment (PRI) (Aktia, 2019).</p>
Carnegie Global / MSCI World Index	<p>"Sustainability aspects are taken into account in the management of the fund: Environmental aspects, Social aspects, Corporate governance aspects. Sustainability aspects are critical in the manager's choice of companies". The fund uses positive screening. The fund rules out certain industries such as chemical, biological, and nuclear weapons. Furthermore, the fund management company executes its investor influence to companies on sustainability issues. (Prospectus, Carnegie, 2020)</p>

	5 Morningstar Sustainability Globes
Danske Invest Sustainability Equity Fund / MSCI World Index	<p>The fund invests in stocks and equity – linked securities available from companies who follow the principles of sustainable development. The fund rules out companies whose business are mainly focus on alcohol, tobacco, gambling, pornography, or weapon industry. (KIID, Danske Invest, 2020.)</p> <p>5 Morningstar Sustainability Globes</p> <p>ESG Inside – Integrated – Label, which means that the fund is managed by a group of portfolio manager who take sustainability into account as a part of investment processes (Danske Invest, 2021).</p> <p>The name of the fund includes straight reference for sustainability.</p>
DNB Fund Global ESG / MSCI World Index	<p><i>“The fund has an ESG profile and will therefore seek to invest in sustainability (environmental, social and governance – ESG) prone companies”</i> (Factsheet; DNB Asset Management, 2021).</p> <p>3 Morningstar Sustainability Globes</p> <p>The fund carefully screens the investment universe and taking into account DNB Groups Standard for Responsible Investments. The fund does not invest in certain industries as conventional weapons, commercial gaming, alcohol production, companies with direct exposures to fossil fuels or in companies with high levels of gas emissions. (Factsheet; DNB Asset Management, 2021.)</p>

	The name of the fund.
Evli Global / MSCI World Index	<p>The fund follows the responsible investment policy of Evli. ESG – factors are integrated in the fund’s investment decisions and investments are monitored regarding violations of YK Global Compact – standards. Furthermore, the fund rules out some industries and Evli publish the ESG – report for the fund, four times a year, which announce for example the responsibility rating and the carbon footprint of the fund. (KIID, Evli, 2020; Evli, 2021)</p> <p>4 Morningstar Sustainability Globes</p>
Evli Global X / MSCI World Index	<p>ESG – factors are integrated in the fund’s investment decisions. The fund follows the responsible investment policy of Evli. The fund rules out the companies who business mainly focus on alcohol, weapons, tobacco, gambling, fossil fuels, nuclear power, adult entertainment, or genetically modified organisms. (KIID, Evli, 2020; Evli, 2021).</p> <p>Furthermore, Evli publish the ESG – report for the fund, four times a year, which announce for example the responsibility rating and the carbon footprint of the fund (Evli, 2021).</p> <p>3 Morningstar Sustainability Globes</p> <p>The name of the fund includes reference for responsibility.</p>
Nordea 1-Global Climate and Environment Fund / MSCI World Index	<p>”In actively managing the fund’s portfolio, the management team focuses on companies that develop climate - and environment – friendly solutions, such as renewable energy and resource efficiency.” (KIID, Nordea Investment Funds S.A., 2020.)</p>

	<p>Sustainable development are taken into account in portfolio management. The fund avoid investing to companies which revenues are composed by for example chemical and biological weapons and the fund follows the fossil fuels policy of Nordea Asset Management. Furthermore, the fund management company use its authority as a owner in order to have influence on companies responsibility issues. The fund's carbon footprint is also available. (Nordea, 2021.)</p> <p>5 Morningstar Sustainability Globes</p> <p>The name of the fund.</p>
<p>Nordea World Fund / MSCI World Index</p>	<p>Sustainable development are taken into account in portfolio management. The fund avoid investing to companies which revenues are composed by for example chemical, biological or nuclear weapons. The fund avoid investing in the companies which are not following the international rules and either can not or are not willing to change their actions. Furthermore, the fund management company use its authority as a owner in order to have influence on companies responsibility issues. The fund's carbon footprint is also available. (Nordea, 2021.)</p> <p>4 Morningstar Sustainability Globes</p>
<p>Sparinvest SICAV Ethical Global Value / MSCI World Index</p>	<p>"The fund applies an ethical screening, which may exclude certain companies or securities from investment. Screening criteria have reference to involvement in the production and / or distribution of certain goods or services, such as for example alcohol, gambling, tobacco, pornography, military equipment, oil sands and thermal coal, and also to compliance with</p>

	<p>international norms for human rights, the environment, labour standards and anti-corruption.” (KIID, Sparinvest, 2020.)</p> <p>3 Morningstar Sustainability Globes</p> <p>Ethix SRI Advisors ensure that every investment in the fund is ethical by using impartial Norm – Based and Sector – Based Screening methods. (Nordnet, 2021)</p> <p>The name of the fund includes straight reference for responsibility.</p>
<p>Swedbank Robur Transition Global (Formerly Ethica Global) / MSCI World Index</p>	<p>The fund invest mainly in companies with products or services can contribute to a more sustainable society. <i>“The investment strategy is thematic and is based on climate & natural resources, health & wellbeing, demography & diversity, and innovation & security. The companies in the fund have relevant sustainability work and meet strict requirements regarding the environment, human rights, working conditions and business ethics. The fund can also invest in companies where we can identify a started transition in the sustainability work. The funds refrains from investing in companies that violate international norms or with links to arms, munitions, alcohol, tobacco, gambling, pornography and those who produce fossil fuels”.</i> (Swedbank Robur, 2021.)</p> <p>5 Morningstar Sustainability Globes</p>

Information regarding funds is gathered from management companies` websites, Nordnet website, funds brochures (e.g., KIID’S), and from Morningstar.