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Green bonds and non-financial value

- A study of the Swedish green bond market

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Green bonds and non-financial value - a study of the Swedish green bond market

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Abstract

Human-caused climate change in form of rising temperatures and sea-level rise are already being seen in many places. To avoid permanent effects on society the goal is to limit global temperature rise at two degrees Celsius above pre-industrial levels. In order to stop the increasing temperature rise, the financial sector has to allocate their funds into investments in renewable energy and sustainable projects that decrease direct impact on the climate. To solve for this, new instruments have been developed. One of these is the green bond.

This study aims to investigate why investors are interested in green bonds and which green bonds they prefer. The values that can be obtained from green bonds is also studied, and what consequences the green bond investment give in relation to the investor´s sustainability strategy / profile.

The empirical information is gathered through interviews with investors that currently hold green bonds in their portfolios and a green bond issuer. The empirical data is analyzed together with a theoretical background on CSR, CSV and Portfolio theory.

The results of the study show that the main benefits from investing in green bonds are the high level of information that increases transparency. The transparency generates a better dialog between issuers and investors. Internal dialog regarding sustainability in the investing company is also increased due to the investment in green bonds. Another benefit is lower long-term risk due to compliance with possible regulations. The high level of information also let the investors know where their money goes and how they contribute to a more sustainable world.

The conclusion of this study is that green bonds give equivalent return as conventional bonds while the information and transparency is higher. The values obtained from green bonds are better transparency, increased brand reputation and a higher demand for the investors' products. Also, being proactive when it comes to possible regulations is a risk-minimizing factor.

Sammanfattning

Klimatförändringar orsakat av människor I form av stigande temperaturer och förhöjda havsnivåer syns redan på många håll. För att undvika permanenta effekter på samhället är målet att begränsa den globala temperaturhöjningen till två grader Celsius över den förindustriella nivån. För att stoppa temperaturhöjningen måste den finansiella sektorn allokera medel till investeringar i förnyelsebar energi och hållbara projekt. Detta för att sänka den direkta påverkan på klimatet. För att lösa detta har nya finansiella instrument utvecklats. Ett av dessa är gröna obligationer.

Den här studien syftar till att undersöka varför investerare dras till gröna obligationer och vilka gröna obligationer de föredrar. Även de värden som kan erhållas genom att investera i gröna obligationer undersöks. Vidare undersöks vilka konsekvenser investeringarna i gröna obligationer har i relation till investerarnas hållbarhetsprofil/-strategi.

Den empiriska informationen samlas in genom intervjuer med en emittent av gröna obligationer samt investerare som för tillfället har gröna obligationer i deras portföljer. Resultatet från intervjuerna analyseras tillsammans med den teoretiska bakgrunden över CSR, CSV och portföljteori.

Resultaten visar att de huvudsakliga fördelarna med investeringar i gröna obligationer är en hög grad av information som i sin tur ökar transparensen. Transparensen leder till en bättre dialog emellan investerare och emittent. Den interna dialogen vad gäller hållbarhet i det investerande företaget ökar också till följd av investeringarna i gröna obligationer. En annan fördel är lägre risk på lång sikt till följd av regel-efterlevnad vid potentiella regleringar. Den höga graden av information gör också att investeraren vet var deras pengar går och hur de bidrar till en mer hållbar värld.

Slutsatsen av studien är att gröna obligationer ger likvärdig avkastning som konventionella obligationer medan informationsflödet och transparensen är högre. De värden som erhålls genom gröna obligationer är bättre transparens, starkare varumärke och högre efterfrågan av investerarens produkter. Och att vara proaktiv när det kommer till eventuella regleringar är en riskminimerande faktor.

Abbreviations

AuM	Assets under management
BIS	Bank for International Settlements
CAPM	Capital Asset Pricing Model
COP21	Twenty-first conference of parties
CSR	Corporate Sustainable Responsibility
CSV	Creating Shared Value
DCM	Debt Capital Markets
EIB	European Investment Bank
ESG	Environmental Social Governance
EU	European Union
EUR	Euro
G20	The group of 20
GBP	Green Bond Principles
HLEG	High-level Expert Group on Sustainable Finance
ICMA	International Capital Market Association
MVO	Mean Variance Optimization
NGO	Non-Governmental Organization
OTC	Over The Counter
P/E	Price/Earnings
ROI	Return on Investment
S&P	Standard & Poor´s
SDG	Sustainable Development Goals
SEK	Swedish Krona
SRI	Sustainable Responsible Investment
TFCD	Task Force on Climate-related Financial Disclosures
UN	United Nations
UNFCC	United Nations Framework Convention on Climate Change
UNPRI	United Nations Principles for Responsible Investment
USD	US Dollars
VaR	Value at Risk

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1 Introduction

The first chapter of this study on green bonds and what factors that drives investors to buy them contains the background of the development of the instrument. More specifically, it discusses the issues revolving the present research of the subject, this study's aim and its research questions, as well as setting the limitations. Finally, Chapter 1 illustrates the study outline and structure of the report.

1.1 Problem background

Climate change is one of the top threats to mankind, with large impacts expected to occur during the twenty-first century. The effects of climate change in form of rising temperatures and sea-level rise are already being seen in many places with ecosystems under of stress, affecting human well-being (UNEPP, 2018). Human-caused increase in global temperature due to greenhouse (heat-trapping) gas emission will severely affect society and the world as we know it. To avoid permanent effects on society the UNFCCC (UN Framework Convention on Climate Change) sets the goal to limit global temperature rise at two degrees Celsius above pre-industrial levels (unfccc,int, 2018)

The Paris Agreement (COP21) builds upon the UNFCCC and for the first time brings all nations to take common action to prevent climate change. The Paris Agreement from December 2015 aims to increase global response to keep the global warming to well below two degrees Celsius. The Paris Agreement entered into force in November 2016 (unfccc,int, 2018). According to the United Nations (2018), the temperature increased by 0,85 degrees Celsius from year 1880 to 2012, and in order to limit the increase to two degrees urgent action to combat climate change have to be taken. This is in accordance with the UN´s 13th Sustainable Development Goal (unenvrionment,org, 2018)

"The ultimate objective of the United Nations Framework Convention on Climate Change is to prevent dangerous human interference with the climate system. To that end, countries are working to reduce their greenhouse gas emissions, adapt to climate change and accelerate sustainable development" (unfccc,int, 2018)

Financial markets may have a key role in climate change mitigation. Financing projects that leads to high emissions of greenhouse gases is not only common but also very harmful. In order to increase renewable energy and sustainable projects that decrease direct impact on the climate, the financial sector has to provide ways by which funds can be allocated to investments targeting climate change mitigation. The Paris Agreement restates the responsibilities of developed countries and states that they should mobilize climate finance from a variety of sources (unfccc,int, 2018).

In June 2017 the Task Force on Climate-related Financial Disclosures (TCFD), a G20-country organization published their final Recommendations Report. The report is about financial markets role in climate change. Amongst other things they recommend efficient capital-allocation decisions into sustainable projects. To reduce greenhouse gas emissions and accelerate the transition into a lower-carbon economy, about 1 trillion USD of investments a year for the foreseeable future are recommended. This will also lead to new investment opportunities and will act as a good risk management tool. A study from 2015 estimated the

total value at risk as a result of climate change to somewhere in between 4 and 45 trillion USD, from now until year 2100 (www,fsb-tcfd, 2018).

Sustainable finance is about investments that take environmental, social and governance considerations into account. The European Union examines how to integrate sustainability considerations into its financial policy, to mobilize finance for sustainable growth (ec.europa.eu, 2018). Sustainable finance incorporates a green finance component that aims to support economic growth meanwhile reducing greenhouse gas emissions, pressure on the environment and waste. Another component in sustainable finance is to increase awareness and transparency regarding risks associated with negative impact on the financial system, and the need to mitigate those risks through governance (*ibid.*).

The High-Level Expert Group on Sustainable Finance (HLEG) consists of 20 senior experts from different sectors and was mandated to provide advice to the EU Commission on how to steer capital into sustainable investments. In HLEG´s final report from January 2018, which was adopted by the Commission in March 2018, they present the action plan on sustainable finance. The key objectives from the implemented action plan are to steer capital flows towards sustainable investment, manage financial risks from climate change and social issues as well as foster transparency (ec.europa.eu, 2018).

Green bonds have been initiated in the financial markets as a green innovation with the purpose to allocate risk-willing capital into sustainable sectors, and especially for the purpose to secure funding of environmentally friendly investments. Green bonds refer to debt securities used to finance environmentally friendly projects. They are constructed in the same way as conventional bonds except from the use of proceeds that are earmarked for specific green projects (www, climate bonds, net, 2018). Investors often have a determined target return. If they cannot reach that target with green instruments, they often allocate their money elsewhere. One reason is that many institutional investors have a risk criterion that hinders them from investing in bonds with low credit rating. The biggest part of issued green bonds are corporate, non-investment grade bonds which make them impossible for certain investors to buy because of the high credit rating requirement, according to the Swedish Government´s report on how to promote the market of green bonds (www, regeringen, se, 2018)

If there are non-financial values that can attract investors, even a lower return on these instruments should attract capital allocation into green bonds that is needed in order to increase green projects (*ibid.*)

1.2 Problem statement

In the financial market, green bonds provide an alternative for investors wanting to contribute to a more sustainable society and environment (Kaminker et al., 2013). Investors have traditionally invested in instruments that give the highest possible return to the lowest possible risk. However, investors may have additional objectives and strategic concerns for their capital allocation decisions such as contributing to societal and/or environmental benefits, but they still expect the securities they invest in to meet their conventional investment objectives (pers. com., Handelsbanken DCM, 2018). There are, however, very limited existing researches on the supply side as well as on the demand side in relation to green bonds. Moreover, recent work suggests that investors have a limited knowledge about green bonds (*ibid.*).

Therefore, the main objective of this study is to examine the capital allocation into green/sustainable instruments and what investors look for when investing in such products.

If green bonds give a lower return on investment than conventional bonds, why would investors be interested in green bonds? If other values exist simultaneously, that might influence the decision-making. How much lower yield can a green bond provide compared to a conventional bond before the investor walks away? Are there any differences in difficulty when estimating the risks between conventional bonds and green bonds, and if so, will green bonds be priced correctly? When it comes to green bonds and the survival of the instrument, an interesting point of view is to examine price differences and the pain threshold. If the yield gap becomes too vast, even if there are other values involved, investors might consider other options to fulfill their CSR and/or investment target.

The specific aim is to examine which values and which green bonds that are attractive to investors. This type of knowledge can be used as input to the understanding of how to increase the availability of funding for green investments. Different corporate sustainability strategies together with portfolio theory are compared and linked to investing in green bonds, to study what drives investors to invest in the instrument. Specifically, the study will examine the value characterization of and seek to address which value generating features that investors associate with green bonds.

1.3 Aim and delimitations

The aim of this study is to investigate why investors are interested in green bonds and which green bonds they prefer. This research aims to examine what values excluding the economic return that can be obtained from green investments in general and green bonds in particular. If there are values created, those will be located in order to see what investors are looking for when choosing bonds.

This thesis research questions are:

- What values can be obtained from investing in green bonds?
- Which green bonds are investors interested in and why?

The research questions above will be answered by comparing empirical information with the theoretical framework. The empirical data comes from interviews with investors that currently are invested in green bonds.

1.3.1 Limitations

This study is limited to target Swedish investors that currently invest in green bonds. Since a substantial part of the green bond market is issued in SEK (the Swedish krona), a limitation to the Swedish market is considered well defined. Further delimitations regarding the interviews are to institutional investors separated into asset managers and asset owners, as well as one green bond issuer to gain knowledge from that perspective.

The diagram Swedish green bond issuance:

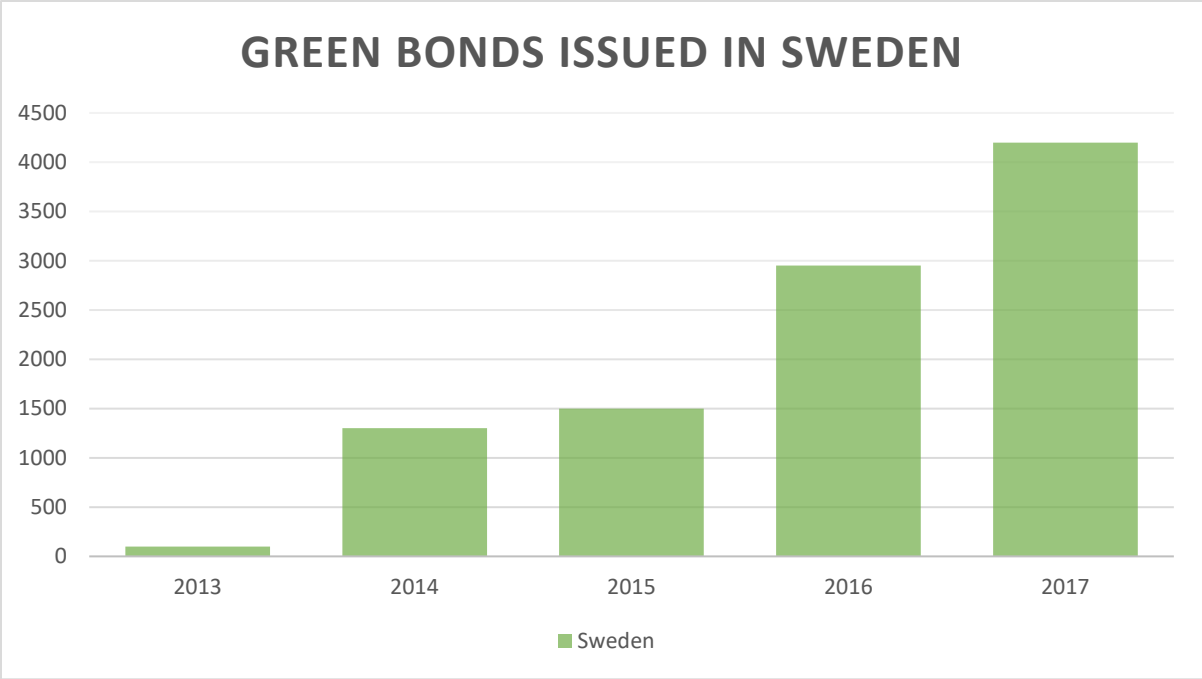

Figure 1 This diagram shows green bonds issued in Sweden from 2013-2017. Amounts in EUR millions (Climate Bonds Initiative, 2018) (own modification)

1.4 Structure of the report

The outline of this thesis is organized as demonstrated in figure 1. The first chapter gives an introduction to the background of the problem, the aim and the delimitations of this study. In the second chapter, a background to the phenomenon of green bonds is presented, necessary in order to understand the aim of this study. Chapter three describes the research design along with arguments for the choice of cases, approach and how the collection of the empirical data was gathered. This is followed by the literature review, where findings in previous research, which leads to the chosen theoretical framework for this study, presented in chapter four. The next section, chapter five, is the empirical study and it starts by providing an overview of the characteristics of the companies studied and later the results that was found. In chapter six the theories and empirical data are compared and analyzed and discussed. Finally, the concluding chapter eight will provide a summary of the findings and suggestions for future research.

Figure 2 This figure illustrates the outline of the study (own design)

2 Background

In the following chapter the phenomenon of green bonds is presented. This chapter begins with a description of asset managers, fiduciary duty and asset owners. This connects to a brief explanation of the elements of the bond markets. Then conventional bonds and green bonds are described and compared. This background is relevant to the study since the understanding of green bonds and how they are issued is important in order to understand and answer the research questions.

2.1 Asset Managers and Fiduciary Duty

An asset manager is described as a person or company that manages someone else´s wealth (www, Cambridge, 2018). They often invest their client's assets in equity, stocks or other instruments that generates interest in order to make the invested money to grow as fast as possible to a given risk-level.

Asset managers have strict guidelines to follow, that regulates their mandate in which products they can invest. These guidelines are called fiduciary duty (Richardson 2007).

A fiduciary is a person or organization that holds a legal or ethical position of trust. Fiduciary duties are the common term for the duties which trustees for example, pension funds have towards their beneficiaries. Trustees are to manage their funds in the interests of the ultimate beneficiaries, and not in their own self-interest. These duties vary a lot between different countries and also different types of institutions. They are legally defined, but how they are legally defined also varies. The fiduciary duties are the rules that guide the asset manager in their investment strategy. Often, they have a specific yield goal and return on investment (ROI) percentage, which is predefined (Richardson 2007).

2.2 Asset owners

Asset owners are institutions or individuals as opposed to asset managers, own their assets. Examples of these institutions can be insurance companies, churches and charities, family offices and fund providers. Finally, asset owners can be divided in to those that manage their own assets or outsource the management of their assets to specialist investment managers (pers. com., Handelsbanken DCM, 2018).

2.3 Characteristics of Bonds

A bond is a security sold to raise money from investors today in exchange for future payments. The bond certificate is where the terms of the bond are described, which includes the dates and amounts of the payments to be made. The payments are made until the maturity date of the bond, which is the final repayment date. The time remaining until the maturity date is called the term of the bond (Berk & DeMarzo, 2017). There are typically two kinds of payments that bonds make to their holders. The agreed interest payments of a bond are called coupons. The periodical, often semi-annual payments of the coupons until the maturity date are typically specified in the bond certificate. The principal (face value) of a bond is the notional amount that is used to calculate the interest payments. The principal is usually repaid at maturity. The coupon rate of the bond decides the amount of each coupon, and this coupon rate is stated on the bond certificate (ibid.)

The three types of organizations that most commonly issue bonds are the following: governments, municipalities and corporations (Berk & Demarzo, 2007).

- **Issuers:**
  - Treasury bonds
  - Municipal bonds
  - Corporate bonds

There are two kinds of corporate bonds, secured and unsecured.

- **Secured:**
  - Mortgage bonds (secured with property)
  - Asset-backed bonds (secured with any asset)
- **Unsecured:**
  - Notes (original maturity less than 10 years)
  - Debentures (medium to long-term debt instrument)
- **Payments:**
  - Coupon or Zero-coupon
  - Fixed or Floating rate

The value of a bond is often calculated as the present value of all future payments together with the par/face value (Berk & Demarzo, 2007).

- **Bond valuation:**
  The value is simply the Present Value of cash flows the bond is expected to produce plus the face value at maturity.

  - Present Value of all the coupon payments

  Added to
  - Present Value of Par Value at Maturity

2.3.1 Capital markets

The capital markets are exchange places, which matches a part in need of financing with a risk-taking part, the investor. Since there are a lot of different types of needs, there are also many different types of instruments and products on the market (Berk & DeMarzo, 2007).

There are primarily two different types of capital markets. There are the debt markets and the stock/equity markets. The largest of these is the debt market, which contains bonds and bills. The largest part of this market is estimated to around 95 trillion USD (in Q3 2017). That corresponds to about three fourths of the total market (equity plus debt markets) (Bank of International Settlement (BIS), 2018). On the debt market, the traditional investors are asset managers and asset owners such as pension funds, insurance companies, mutual funds and other large institutional investors (Berk & DeMarzo, 2007).

There are also individual investors that purchase bonds, but they only stand for a small part of the market. Individual investors often act on the stock market due to minimum investment amounts that start on relatively high levels on the debt market. There are more barriers to entry for individual investors, one of them being that bonds are traded OTC (over the counter), unlike stocks (Berk & DeMarzo, 2007). This means that contact with a broker or bank when purchasing a bond is necessary and the broker will then determine the price with the selling part

before doing the trade. The selling part is not obliged selling to the prices displayed. On the stock market you can buy stocks to the prices shown in the terminal. This means that bond prices usually adjust as soon as there is any trading activity, otherwise the price is relatively stable according to Svenska Handelsbanken DCM (2018). Bonds sell on the market at either a premium or discount, depending on the expected yield.

2.3.2 Bond Spreads

Bond spread is the term for the difference of the interest rates between bonds. Simplified, it is one bond yield minus another. This term is commonly used in the market to communicate, and compare bond values. The closest measure on the equity market would be the P/E-ratio (Price/Earnings) according to (Berk & DeMarzo, 2007). This is important to understand as green bonds often are compared with conventional bonds in terms of spread.

2.3.3 Liquidity

According to Svenska Handelsbanken DCM (2018), Liquidity is important to take into consideration. Due to investors mandate to invest in different instruments and availability to withdraw from the market in case of a collapse. Particularly asset managers are reluctant to hold illiquid bonds because of these requirements.

2.3.4 Maturity

The maturity of a bond can be seen as a risk measure. A longer maturity implies a higher risk of the investment due to uncertainty in the long-term interest rate, which can affect the value of the bond. If the “risk free” interest rate goes up, the value of the bond goes down. The higher risk gives a higher required yield for bonds with longer maturity. This according to Berk & DeMarzo (2007) means that asset managers and asset owners often combine bonds with different maturities in their portfolio in order to mitigate risk.

2.3.5 Coupons

As mentioned earlier, the interest payments are called coupons and in order to define the total yield from bonds, coupons are an important factor. The coupons can be paid as yearly dividends during the investment period or as a floating dividend. Coupons can both be fixed and paid as a certain dividend per year or semi-annual. The last mentioned is the most common. The semi-annual payments are often preferred due to the lower risk, from an investor perspective. There is a lower risk that the issuer defaults between a pair of payments, if the time between is shorter. Another factor is that shorter periods between payments are preferred because of possible inflation, currency exchange-reasons and the Time Value of money (Berk & DeMarzo, 2007)

2.3.6 Credit Rating

Bonds are rated after the issuer’s risk of default. If every investor privately had to investigate the default risk of every bond, it would be inefficient and problematic. Therefore, numerous companies rate the creditworthiness of debt instruments such as bonds and offer the information to investors. There are mainly three corporations that perform credit ratings, those are: S&P, Fitch and Moody´s. Their rating scales are a bit different but include the same grades (Berk & DeMarzo, 2007).

The figure below summarizes the rating classes each company provides:

	Moody's	S&P	Fitch	Meaning
Investment Grade	Aaa	AAA	AAA	Prime
	Aa1	AA+	AA+	High Grade
	Aa2	AA	AA	
	Aa3	AA-	AA-	
	A1	A+	A+	Upper Medium Grade
	A2	A	A	
	A3	A-	A-	
	Baa1	BBB+	BBB+	Lower Medium Grade
	Baa2	BBB	BBB	
	Baa3	BBB-	BBB-	
Junk	Ba1	BB+	BB+	Non Investment Grade Speculative
	Ba2	BB	BB	
	Ba3	BB-	BB-	
	B1	B+	B+	Highly Speculative
	B2	B	B	
	B3	B-	B-	
	Caa1	CCC+	CCC+	Substantial Risks
	Caa2	CCC	CCC	Extremely Speculative
	Caa3	CCC-	CCC-	In Default w/ Little Prospect for Recovery
	Ca	CC	CC+	
		C	CC	In Default
			CC-	
	D	D	DDD	

Figure 3 illustration of the Bond Credit Ratings Table (Waring, 2012)

A high rating means low probability of default.

- **Investment-grade bonds:**
  - Bonds in the top four categories
  - Low default risk
- **Junk bonds / High-yield bonds:**
  - Bonds in the bottom five categories
  - Higher default risk

Asset managers often have a restriction in their mandate to invest in bonds other than investment grade. Which means that the number of prospective buyers of high-yield bonds can be much lower according to Svenska Handelsbanken DCM (2018).

2.3.7 Conventional bonds

Everything mentioned earlier in chapter 2.3 describes the characteristics of conventional bonds. When issuing a bond, the purpose is to finance a project, refinancing the business or financing the daily operations in a company. This together with bank loans are the most common way to finance a business. The reason why companies choose to issue a bond, is to mitigate risk and to some extent get cheaper financing than through a bank (Berk & DeMarzo, 2007)

2.4 Green bonds

Green bonds are constructed exactly the same as a conventional bond. The only thing that separates them is the purpose for financing and use of proceeds. The issuance of green bond follows a strict policy. The World Bank, the European Investment Bank and the Swedish bank SEB issued the first green bonds in the years 2007/2008. They were issued in order to create a green instrument on the debt market, to increase sustainable investing (www, climate bonds, net, 2018)

2.4.1 Green Bond Principles

To call it a green bond, the financed project has to live up to certain standards. The policy that governs the issuance is called the Green Bond Principles (GBP). These guidelines were developed by ICMA, the International Capital Market Association and latest updated in June 2017. The GBP was developed to guarantee legitimacy. GBP are used by all stakeholders i.e. issuers, investors and third-party reviewers (ICMA, 2017). The four core elements of GBP are as follows:

- Use of Proceeds
- Process for Project Evaluation and Selection
- Management of Proceeds
- Reporting

The first element, Use of Proceeds aim to focus the financing into projects connected to (ICMA, 2017):

- Renewable energy
- Energy efficiency
- Pollution prevention and control
- Environmentally sustainable management of natural resources
- Terrestrial and aquatic biodiversity conservation (e.g. protection of coastal marine or watershed environments)
- Clean transportation
- Sustainable water and wastewater management
- Climate change adaptation (e.g. early warning systems)
- Eco-efficient or circular economy adapted products
- Green Buildings which meet international recognized standards/certifications

Those are the criteria's that the character of a project needs to have to be financed as green. The second element, Process for Project Evaluation and Selection forces the issuer to clearly communicate the sustainability objectives, the process of how the project will be carried out and an explanation of the project. The third element called Management of Proceeds forces the issuer to use the proceeds in the green project only. Often an escrow-account (protected account) is used and since the GBP encourage a high level of transparency an auditor often monitors the allocation of funds (ICMA, 2017). The fourth and last element is Reporting. ICMA (2017) explain this element as follows: "Issuers should make, and keep, readily available up to date information on the use of proceeds to be renewed annually until full allocation, and as necessary thereafter in the event of material developments" (www, ICMA, 2018).

Most of the issued bonds finance projects in renewable energy, energy efficiency and green buildings. Especially in the Nordics in general and in Sweden in particular, real estate companies are the biggest issuer group (Climate Bonds Initiative, 2018).

2.4.2 Third-party Review

It is recommended by the GBP to use an external review by a third-party firm to confirm that the issuance is made in line with the principles. These reviews are often referred to as second opinions. Such second opinions can be performed by specialist sustainability-firms (ICMA, 2017). The purpose of the second opinions is as mentioned above to confirm the alignment with the GBP. This is crucial to investors since they need to be certain that their financing leads to

what they expect. Issuers are not obliged to the third-party review, but it has more or less become a requirement (pers. com., Andersson, 2018).

According to Humlegården Fastigheter AB, the two most common third-party firms that perform second opinions in the Nordics are CICERO and Sustainalytics. When CICERO performs their second opinions, they grade the projects after their own scale called Shades of Green. The scale includes dark green, medium green, light green and brown to offer investors better insight in the environmental quality of green bonds (www, CICERO, 2018)

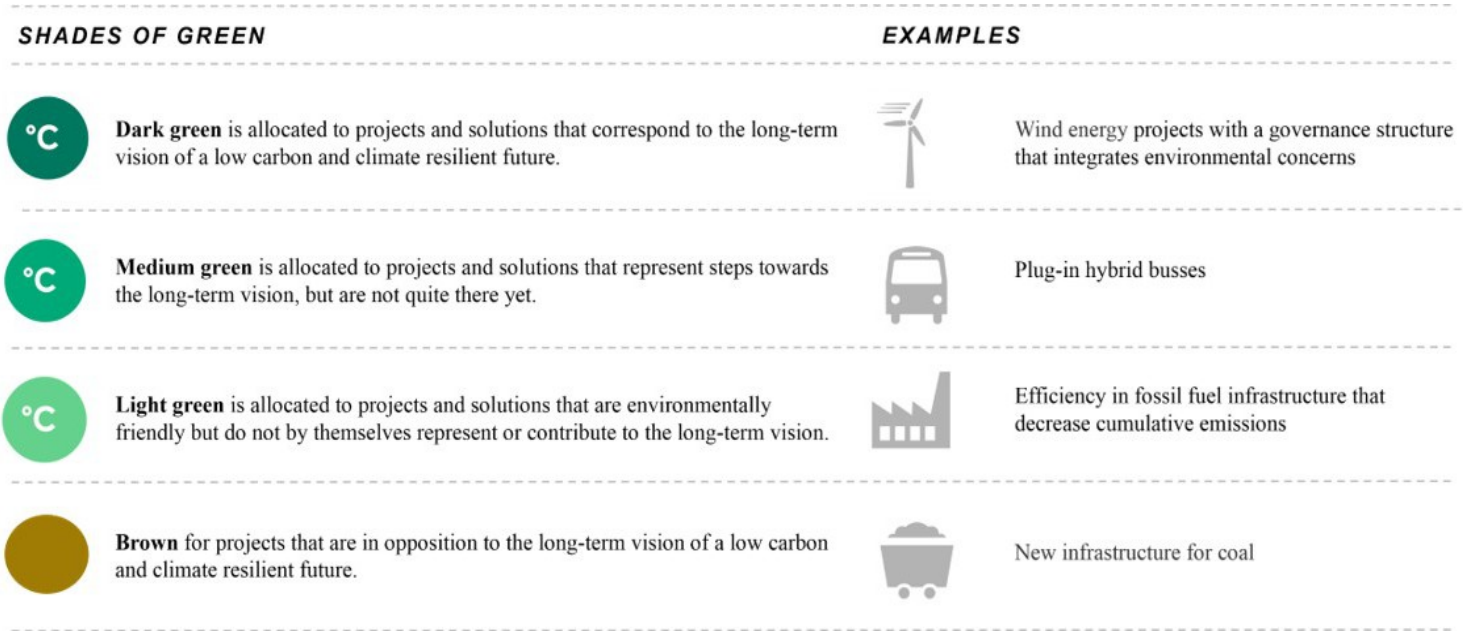

Figure 4 "Shades of Green" CICERO, 2018

The dark green color is the highest grade in the scale and is given to the most sustainable projects. Thereafter, the scale decreases with the color; less green means a less sustainable project. A brown rating means a non-sustainable project (www, CICERO, 2018)

2.5 Summary and comparison

The total value of the green bond market stands for less than one per cent of all issued bonds. The green bond market is as mentioned earlier relatively young but is growing exponentially, from zero in 2007 to 300 billion USD at the end of 2017 (regeringen, se, 2018). In order to meet the two-degrees-goal from the Paris Agreement, investments according to some studies need to reach 93000 billion USD until year 2030. To meet the goal, many institutions claims that green bonds is a key financing instrument in the shift. To enable investors to increase their allocation into green bonds, actions need to be taken to make them more attractive (*ibid.)*

The main difference between a conventional bond and a green bond is the element of influence that is absent in a conventional bond. Since green bonds according to the GBP needs to fulfill certain fundamentals such as reporting of the process, transparency occurs.

Below are two figures of the bond market. The first figure shows the total bond market split into share by biggest issuer market. The second figure shows the total green bond market in comparison to the total global bond market, which is still lower than one per cent.

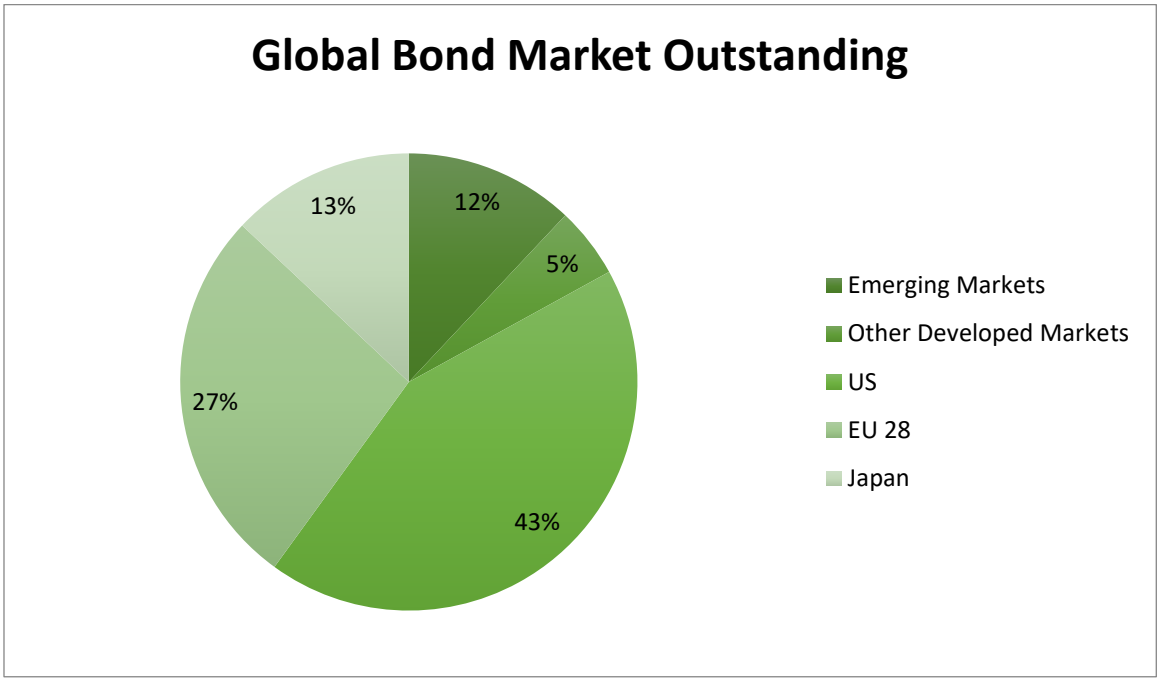

Figure 5 Illustration of the total outstanding bond market. Total amount $92.2 Trillion in 2016 (Bank of International Settlement (BIS), own modification)

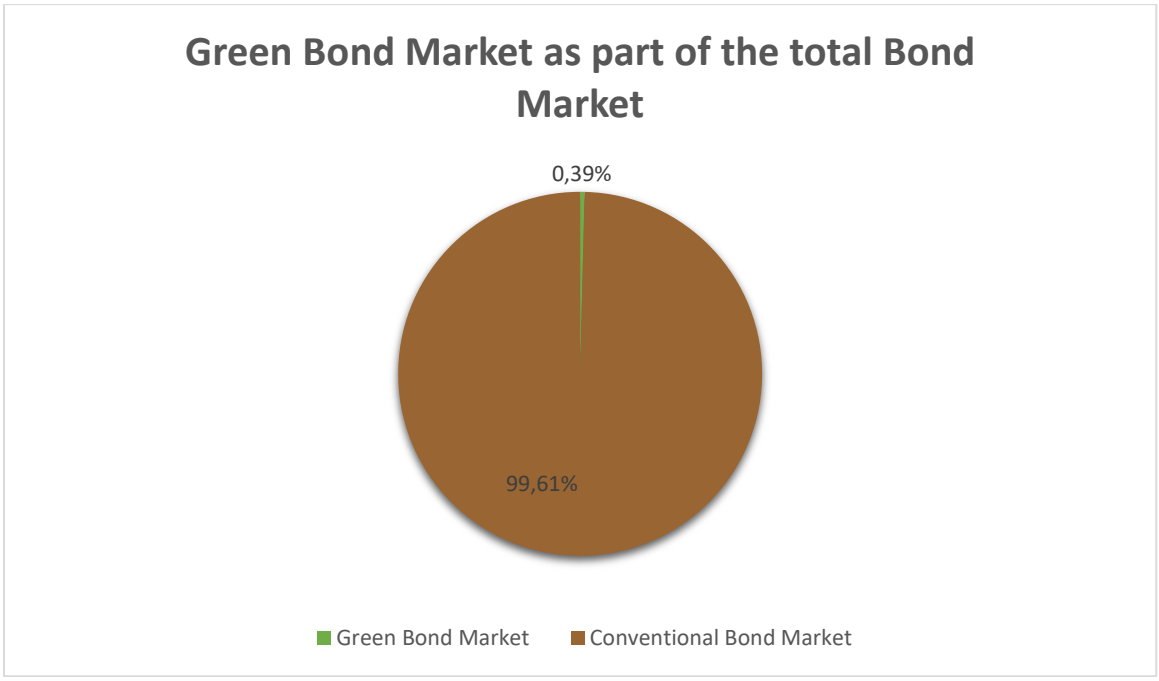

Figure 6 Illustration of the Green Bond Market in comparison with the Total Bond Market in 2016. (Own design)

3 Method

Chapter three aims to describe the chosen methodology for collecting and analyzing data, working procedure and furthermore to evaluate the trustworthiness of this study, as well as defining the delimitations. This is described in order to give an understanding of how the research approach is formed.

3.1 Research design

In this project, a qualitative research method was chosen in order to gather empirical evidence to answer the research questions. A qualitative approach is considered appropriate, as the purpose of the study is to analyze the responses from investors that invest in green bonds. Moreover, a qualitative approach is generally applied in research when working with soft factors (Bryman & Bell, 2013). When using a qualitative approach, it is easier to get answers that cannot be seen in numbers or is unavailable without meeting with or talking to the study object (ibid.).

To collect the empirical information in this study, semi-structured interviews were held with several investors that invest in green bonds today.

3.2 Literature Review

This study builds on a literature review, where relevant literature to understand the research field was found. The review of previous studies made it possible to find a gap in the literature when it comes to the studied phenomenon (Bryman & Bell, 2013). The findings in the literature review became the ground stone to build a conceptual and theoretical background by linking established theories together. By conducting a literature review, the researcher builds an understanding for the present studies in the area and concepts necessary to understand the phenomenon (Bryman & Bell, 2013). The literature review was used in this study to find theories that will be used to analyze the empirical information.

This study requires theories from different areas to understand the phenomenon of green bonds. Those areas are CSR and theories in close connection to CSR together with Portfolio Theory. Green bonds and what drives investors to invest in them has almost not been investigated before when it comes to value creation. Therefore, a wide literature search was conducted and considered appropriate.

When searching for literature to understand what is already identified about green investments, the fact that a gap in the research exists was clear. To find evidence in the empirical results regarding drivers to invest in green bonds, mainly three theories and concepts were studied. These are, as mentioned in the next chapter CSR, CSV and Portfolio Theory. The literature review resulted in chosen theories, which helped to form questions from these fields focused on asset managers, asset owners and issuers used in the interview guide made for both bond issuers and investors.

According to Bryman and Bell (2013) there are different methods to use when it comes to reviewing previous literature. The systematic review contra the narrative reviews. This study uses a narrative review since it is less focused and broader than the systematic review. Since this study requires theories from the above-mentioned fields, a narrative review fits the purpose.

The articles were found using the keywords from the table in chapter 4.1. The columns were used as single keywords and in combination with other keywords with 'AND' as criteria. Academic databases such as Primo, Google Scholar were used in the search. Google´s search engine was used to find information regarding green bonds and climate goals from e.g. UN, EU and the Swedish Government.

3.3 Qualitative study

Conducting a qualitative study is a research strategy where collecting and analyzing data based on words and sentences is of great importance, rather than quantification. A qualitative research strategy is inductive, interpretative and constructive, although according to Bryman & Bell (2013) this is not supported by all qualitative researchers.

Qualitative research differs from quantitative research in several ways. In terms of the relationship between theory and practice, qualitative research method is characterized of inductive vision. Consequently, the theory is generated on the basis of the data collected. The theoretical starting point is interpretative, meaning that emphasis is based on understanding social reality on the basis of how individuals in a specific environment interprets this reality (Bryman & Bell, 2013). This differs from a quantitative study that often uses a deductive approach, where the theory is tested with a hypothesis and data comes from the gathering of required information (*ibid.)*

Qualitative analysis is also collected from articles and documents (Bryman & Bell, 2013). Since the area of research is relatively new and unexplored, this study will use a qualitative approach and be flexible, which means that it is open to changes throughout the study and qualitative approach (ibid.)

The green bond was first introduced by the European Investment Bank (EIB) and the World Bank in 2007/2008, and is a relatively new phenomenon on the market. Although green bonds are getting more common, the concept is barely studied by academics. When a phenomenon has not yet been studied more deeply by other scholars, it is of great importance for the researcher to be prepared for changes along the process. For example, the tools for data collecting as well as the sources of data might change during the process (Bryman & Bell, 2013).

3.3.1 Reliability and Validity

According to Farquhar (2012) Reliability and validity are two key aspects of research. The concept reliability is divided into internal reliability and external reliability and implies how reliable a study is. Internal reliability is a measure to see whether the researchers interpret observations in the same way. External reliability means the extent to which the study can be replicated. By validity, means to which extent the study is focusing on the right thing, if the intended being reached. The term is divided into internal validity, which means whether the conclusions drawn in the study are credible or not. External validity takes into account if it is possible to generalize the result to other fields as well (Farquhar, 2012). When studying green bonds and the incentive to invest in them, focusing on investors is an appropriate unit of study to reach the purpose of this study. To study the issuer of a green bond is also interesting to get their point of view and to see what they believe investors look for when investing in bonds. When studying asset managers and asset owners, validity is taken into consideration. By getting help from Handelsbanken DCM to get in contact with investors, high validity was assured since

Handelsbanken does business with the investors, and know which investors that hold green bonds. Also, reliability is considered, even if the study might be hard to replicate.

3.3.2 Quality assurance

According to Bryman & Bell (2013) validity and reliability can be guiding when assessing the quality of quantitative research. When it comes to qualitative research, flexible research and case study design, it might not be equally relevant since the results cannot be generalized (ibid.) When assessing the quality of qualitative research, other more relevant methods can be used. Trustworthiness is commonly used in qualitative research and can be used as criteria when assessing the quality. Trustworthiness can be separated into four different categories; these are credibilit, dependability, transferability and confirmability (Bryman & Bell, 2013). Trustworthiness was used in this study to assure the quality and was increased by the supervision from Handelsbanken DCM with knowledge in the bond market.

Credibility is described as a method to determine whether the result of the study is credible and related to reality or not (parallels internal validity) according to Bryman & Bell (2013). One factor to increase the credibility in the qualitative study is to find the right interview respondents to ensure that the right person with knowledge in the topic is interviewed. Since this study is conducted with supervision from Svenska Handelsbanken, they provided contact information to key persons at the issuer, different asset managers and asset owners. With help from Handelsbanken, getting in contact with persons in decision-making positions was possible. All interviews were recorded and transcribed to ensure a high as possible accuracy. Respondent validation was used in order to map the evidence from the interviews and the specific respondents verified quotes and statements to get everything correct and erase any potential misunderstandings (Bryman & Bell, 2013). This was made before the information was analyzed and used in the study.

If the study can be repeated is determined by the dependability. Dependability in qualitative research and case study design means that the researcher shall take the potential changes along the way into consideration (Bryman & Bell, 2013). This study explains and describes all the stages in the research, such as changes in the theoretical background, empirical study and describes the theories used and the chosen method. Also, a student peer reviewed the thesis.

Transferability defines if the results can be transferred to other situations and contexts and if the results can be generalized (close to external validity). To increase the transferability, choosing widely accepted theories when analyzing the results is ideal. Bryman and Bell (2013) mention actions to increase the transferability of qualitative research. These can be to describe the implications and the assumptions made in the study.

Finally, confirmability is about trying to be as objective as possible, ensuring that any potential bias from the researcher is excluded when it comes to personal values and the chosen theoretical background (Bryman & Bell, 2013). To increase the quality and confirmability in this regard, the literature review and discussion with the supervisor helped to critically assess the theories before they were chosen.

Bryman and Bell (2013) mentions that qualitative research in general inclines to be difficult to repeat. Statistical generalization from qualitative research is not common. This study did not aim to generate statistical generalization. By choosing a case study design, the results might be

able to theoretically generalize and come up with new theories. The results can also increase the understanding of investors' obtained value from bond investments (Bryman and Bell, 2013).

3.4 Case study

To gather empirical evidence and answer the research questions, a case study design was used in this study. When conducting a qualitative and flexible research, case study design is a common method (Robson, 2011). The design is the ground stone in some of the most well-known business studies (Bryman & Bell, 2013). Case study design is well suited as a business research method and is used to explain difficult relations, as it provides a deep and holistic analysis of a problem (Farquhar, 2012). In studies with research questions that try to answer how and why, a case study design is appropriate (Farquhar, 2012). When studying an on-going phenomenon, case studies, unlike other research methods is a good choice. One or more units are investigated using a case study, through data collection methods such as interviews or questionnaires (ibid.). The definition of a case can be anything from an individual or an organization, to an activity or a process in business research. To best understand and evaluate the context of a case, using a combination of methods for collecting data, such as interviews or observations is preferred (Bryman & Bell, 2013). Therefore, both interviews with investors and observations of the green bond market are used in this study.

In case studies a phenomenon can be studied in its real-life context and character, which is the overall advantage. Based on specific perspectives such as size, geographical scope, industry, etc. issues and research questions can be studied in depth. The purpose of the case study design is to go deeper, look for explanations and create an understanding of a problem (Farquhar, 2012). Case studies can be conducted within a single case or multiple cases. It is the characteristic of the studied phenomenon that will decide which approach is most suitable. This study uses a multiple case approach when exploring the concepts of CSR, creating shared value and portfolio theory. This is preferable to a multiple case according to Yin (2009) since a multiple case approach is suitable when the researcher attempts to document and analyze less unique cases.

3.4.1 Choice of Case

The author has chosen to investigate four investors. Both asset managers and asset owners will be studied in order to gather sufficient empirical information to investigate and analyze, which strategies that exist and what the differences are. The author selected cases that are specifically informative and thus could best answer the research question and meet the objectives (Yin, 2009).

Moreover, well-defined unit of analysis is a central component of a case study (Bryman & Bell, 2013). To examine the unit of analysis in a study, it can be explained as the object that is observed (ibid.). In this study, the choice of cases is the investors and the unit of analysis is their bond investments and their individually differentiated portfolios.

The criteria for selecting investors were that it should be Swedish investors that currently invest in bonds and green bonds. It should also be cases that can represent asset managers and asset owners.

3.4.2 Criticism against case studies

According to Yin (2009) the main issues with a case study design are both that case studies lack objectivity and precision. By objectivity means to which extent the study is separated from the researchers own subjectivity. Objectivity is a measure of reality. In order to conduct an objective study, some distance between the researcher and the studied object is necessary. These studies are often carried out by a survey or experiment (Farquhar, 2012). This was considered by interviewing both investors and a bond issuer to be more objective.

Case studies aim to investigate a phenomenon in depth, as described in the previous paragraph. To be honest and open has been a problem for researchers that has an impact on the research, which can become subjective. The second level of criticism is that case study research does makes it hard to generalize, also known as external validity, as the case study research focuses only on a few cases. It is therefore important not to draw general conclusions about a population based on a sample when conducting case studies (Bryman & Bell, 2013).

3.4.3 Semi-structured Interviews

In this study, semi-structured interviews were conducted to gather empirical information from the cases. This method was chosen to get the interviewed units to answer according to some pre-set themes that are examined. According to Bryman & Bell (2013), the interviewed person has the possibility to form their answer in a flexible way. In a semi-structured interview, the questions can be asked in any order even if the common way is to ask them in a predefined order (ibid.). In this study, the questions and interview guide was sent to the interviewee before the interview, in order to make them more prepared and to get better answers. Another aspect of semi-structured interviews is that the researcher has the possibility to ask supplementary questions as the interviewee answers on the main questions. These discussions can make the researcher to see new perspectives and be valuable to the study (Bryman & Bell, 2013). The critique against semi-structured interviews is that it may be harder to categorize and analyze the answers compared to a structured interview where the interviewee not have the same opportunity to develop their answers (Farquhar, 2012). I this study, it was important to let the respondents develop their answers to be open for unexpected result.

The interviews were held in person. To gather as deep information as possible, interviews held in person is preferred to telephone interviews. Since body language and other details can be missed and it is easier to be less focused over the phone then in person (Bryman & Bell, 2013).

3.5 Collection of Data

The empirical data/information used in this study was gathered through semi-structured interviews with investors and issuers of green bonds. Semi-constructed interviews are a common practice when conducting a qualitative study (Bryman & Bell, 2013). When gathering the empirical evidence, interviews were held with key persons at asset manager companies, asset owners and an issuing company. The key persons were portfolio managers or sustainable / responsible investment managers. All interviews were recorded and held face-to-face and lasted for around 45 minutes to one hour. As mentioned above, an interview guide was used in the semi-structured interviews and all questions were sent to the interviewees before the meeting. The semi-structured does not follow any strict order when it comes to answering the questions and the interview is therefore flexible. This interview technique lets the respondent

develop some of the topics and talking around questions is common (Yin, 2009). The interview guide in this project where made based on the different respondents where questions focused on asset managers contra asset owners and the issuer was made. The interview guide can be found in Appendix 1. The interview guide was built on the theoretical framework in the previous chapter. The interviews were also complemented with fund and investment information sent from the investors after the interviews. This information included percentage of the portfolios share invested in green bonds etc.

Bryman & Bell (2013) mentions that the data collected from interviews can be complemented with information from existing literature and in that way, support the results. The existing data in this case is mainly information about the bond market, green bond issuance and the third-party reviewing companies like CICERO and Sustainalytics. This provides market information and tables with data. Also, the interview held with the issuer strengthens the results.

3.6 Data Analysis

Since this is a qualitative case study with large amount of information from interviews, managing the data and information, how to analyze the data is prepared early in the study. To focus the analysis on the relevant information, a summary of each interview is made in chapter 5, where choices to exclude less relevant information was made. The analysis of the empirical information is structured according to the theoretical framework to find answers to the research questions and finding results fitting the purpose of the study. This structure is preferable since the theories have formed the research since the start (Yin, 2009).

The aim is to identify similarities and differences between asset managers and asset owners' portfolio management and sustainability profiles when it comes to green bond investments. To analyze how the respondents, think when they include a green bond in their portfolio, the theories together with the empirical information from the interviews are fundamental. The theories can be combined or used alone when looking for evidence in the empirical results.

3.7 Ethical considerations

In research it is important to consider the ethical of how individuals are treated and studied. (Bryman & Bell, 2013). Since qualitative research often means near contact with individuals and organizations when studying their opinion and views, a high level of ethical concern is required. Ethical issues might arise throughout the research according to Bryman & Bell (2013). The ethical aspects regarding the individuals that takes part in the study, has to be covered by the principles of integrity, anonymity, voluntary and confidentiality. This implies that the researcher has to inform the respondents of the study's purpose and their right to know the interview structure and how the results will be used together with their right to review the results before publishing (*ibid.).* As mentioned in the quality assurance, all respondents got to review the interview results and accept citation and quotes. Another aspect is that the gathered data or information from the respondents cannot be used in any other purpose. The ethical aspect in this study regarding confidentiality was that all respondents were asked if they wanted to remain anonymous or not. None of the respondents demanded anonymity or censorship. One of the demands was to keep classified information out of the study Yin (2009) stresses the fact that respondents have to give their consent to take part in the study and accept all information before publishing anything.

4 Literature review and theoretical background

Chapter four starts with an overview of theories and previous studies regarding Corporate Social Responsibility (CSR), Creating Shared Value (CSV) and Portfolio Theory. Since green bonds are a relatively new phenomenon, there are limited studies carried out in this field. However, the literature on portfolio theory, CSR and ethical investments in general are much more extensive. This section will summarize the relevant parts of this literature and provide the theoretical starting point for this study.

4.1 Literature review approach

The literature review aims to provide a theoretical foundation for the possible drivers and motivation for green investments in general and green bonds in particular. What determines the decision to invest in green bonds is explained by a combination of different fields of existing research. First, Corporate Social Responsibility, which can describe different firms' specific sustainability profiles, was included. Also, the financial benefits from lower costs and access to new capital are assumed to be heavy drivers for firms to undertake proactive sustainability initiatives (Porter & Kramer, 2006). Second, Creating Shared Value through investing in green bonds can be advantageous compared to other green practices performed by companies and thus benefit from similar advantages linked to green practices (Porter & Kramer, 2011). Finally, classical Portfolio Theory was included as a basis for how and why asset managers and asset owners allocate funds towards green bonds.

The characteristics of green/ethical investments are also explained as a tool for firms to live up to their specific sustainability profile (Kreander, et al. 2005). The characteristics of green and ethical investments explain how substantial reduction of social and environmental impacts calls for an extension of green bonds and methods to finance sustainable projects (www, regeringen, se, 2018).

In the table below, the keywords used in the research during the literature review are presented.

Table 1 Illustration of keywords used in the research (Own design)

Concepts and Theories			
Corporate Social Responsibility (CSR)	**Creating Shared Value (CSV)**	**Portfolio Theory**	**Green/Ethical Investments**
Keywords			
CSR Strategy	Measuring Shared Value	Diversification	SRI (Socially Responsible Investments)
CSR Activity	Social Objectives	Risk Mitigation	ESG (Environmental, Social, Governance)
Screening	Environmental Objectives	Value at Risk	Sustainability Profile
Transformation	Value Creation	Risk-adjusted Return	Performance

The keywords used in the research have the purpose to find evidence for asset managers and asset owners' investor strategies. The keywords used in the search for articles regarding CSR profiles starts with CSR Strategy that will be used in the interview guide for both types of investors. This leads to certain CSR activities to fulfill these CSR Strategy goals. The next field

of literature regarding CSR will be screening, to see how firms exclude or include different sectors in their portfolio management. Finally, articles regarding transformation into a more sustainable investor strategy are searched for to explain the CSR involvement in the investors strategy.

The search regarding the theory of CSV includes measuring shared value and social objectives. Both asset managers and asset owners will be asked questions connected to literature in these fields to see if they consider these aspects when they manage their portfolios, and if they differ. The consideration of environmental objectives and value creation has also been used in the search and they will connect to questions in the same regard as the previous questions within CSV.

In the search for literature connected to portfolio theory, risk mitigation and diversification has been used as keywords. In order to locate differences between asset managers and asset owners and if they believe green bonds have a function to fulfill any of these. When searching for literature in this field, Value at Risk appeared and was also used as a keyword to find evidence of risk mitigation in the portfolio strategy. This led to Risk-adjusted Return as a alternative measure and both asset managers and asset owners will be asked questions regarding the literature found.

When searching for CSR, green and ethical investments appeared in many articles and will also be examined. The keywords within this field are ESG, SRI and sustainability profile linked to performance. These aspects will also be included in the theoretical background and linked to the interview guide. Both asset managers and asset owners will be asked questions about their view on this and will be compared to find any differences.

The keywords above were used to find relevant studies connected to the theories and concepts as mentioned earlier. When comparing asset managers and asset owners and also weighing in the issuers perspective, the keywords was formed for the purpose. All keywords fit the purpose to find relevant literature, which later forms the interview guide. Since asset managers and asset owners have a goal to achieve return on investments, the literature will fit both. Even if their risk apatite might differ, the same theories and concepts will be used as a foundation for the interview question battery. When interviewing the issuer, a different interview guide will be used. Since the issuer does not invest any money, the portfolio theory part will not be included. The focus on CSR and CSV is far more relevant for the issuer and therefore questions regarding these concepts together will dominate the interview questions. The interview guide can be found in Appendix 1.

The research included search for single keywords from the table above as well as research including several keywords together such as ‘Performance AND CSR strategy AND ESG’ for example.

4.2 Corporate Social Responsibility

The concept of Corporate Social Responsibility involves a broad set of theories, of which some can be quite complex and unclear (Grankvist, 2012). Corporate Social Responsibility is about corporate responsibility in the society, divided into three areas: financial responsibility, environmental responsibility and social responsibility (*ibid.*).

- **Financial Responsibility**: Is about running a profitable business and making a profit as high as possible, and in that regard show responsibility for the company´s future

business. This is also important to show the owners and shareholders that the business is run in a responsible way (Grankvist, 2012).

- **Environmental Responsibility:** This area covers the negative (or positive) effects on the environment caused by the company. It is about running the business without damaging the planet and the natural resources in a negative long-term perspective. (Grankvist, 2012).
- **Social Responsibility:** Running the business like a good citizen, which implies showing concern for other citizens and their health and wellbeing regardless of them being employees, work for a supplier, business partner or if they are consumers. (Grankvist, 2012).

Ultimately, the fact that companies' responsibilities are getting broader as a result of growing international trade, the interest in CSR has increased in the last years. This has stressed the need for transparency and accountability (Jamali & Mirshak, 2007). Corporations today are expected to show accountability for concerns that was not seen as a typical responsibility for corporations twenty years ago. This is mainly due to increased awareness and response from the public, media and NGO's (Porter & Kramer, 2006). Even though businesses have become more aware of their responsibilities, what to do about them is something less clear. Typically, the most common response from corporations has been media campaigns and public relations rather than strategic or operational countermeasures (ibid.). CSR reporting is getting more frequent both between large, listed corporations and SME´s (small and medium-sized enterprises). These reports often show different initiatives from the businesses regarding social responsibility, rather than a clear strategic framework (Porter & Kramer, 2006). The increase in reporting can also be linked to a growth in CSR rating and rankings. In order to be a competitive company, those rankings have become more and more important. The reports tend to show a more detailed plan for businesses activities in recent years. Such rankings use different parameters in their measure. For example, FTSE4Good Index does not contain any measure of economic performance. The Dow Jones Sustainability Index uses the size of a company´s board as a measure of community involvement. Since these indices vary, the CSR reports vary in their content and focus area (*ibid.)*

Corporates are using CSR as a management tool increasingly to reduce their risk. Being held accountable for environmental and social issues can cause great damage on a business if not predicted. There are great financial risks involved in business activities that are seen as unacceptable by stakeholders. There are many examples of financial damage mentioned in the article caused by irresponsible behavior. The losses and reputational effects of abusive labor conditions and violation of human rights are substantial (Porter & Kramer, 2006).

Lately, the focus for companies has emerged from why they should engage in CSR activities to how to do so in an effective way. (Roberts, 2003) There are several theories of, and approaches to, CSR (Garrigá & Melé, 2004). The theories all origin from the connection between business and society but induces different aspects of main focus and how to achieve those. As mentioned above, the sustainability indices have become guiding.

4.2.1 Definition of CSR

The concept of CSR does not have any general established definition, but it is necessary to find a definition in line with the approach of this study to iron out any uncertainties. A frequently used definition of CSR involves the fact that corporations invest and participate in activities that is beyond the requirements of the regulations (Roberts, 2003). Since this wide definition

includes both external and internal activities as well as the aspects of the triple bottom line (economic, social and environmental considerations (Grankvist, 2012)). However, CSR can be an activity that lowers negative impact or creating positive impact. Activities aiming to minimize the negative effects on the environment and the society by corporations' is one. The other could be to establish activities with positive effects in the same areas. These activities can run through any level in the value chain (Porter & Kramer, 2006). The definition of CSR by EU is as following:

"Corporate social responsibility (CSR) refers to companies taking responsibility for their impact on society. The European Commission believes that CSR is important for the sustainability, competitiveness, and innovation of EU enterprises and the EU economy. It brings benefits for risk management, cost savings, access to capital, customer relationships, and human resource management." (ec.europa.eu, 2018)

4.2.2 Strategic CSR

Michael Porter's view of strategy is the following "competitive strategy is about being different. It means deliberately choosing a different set of activities to deliver a unique mix of value" (Porter, 1996, s. 60).

There are many sub-categories of CSR. One of them is Strategic CSR, where companies focus on CSR-activities in order to gain competitive advantage and reach financial goals (Garrigá & Melé, 2004). Instead of viewing CSR as laws and regulations that companies have to oblige to, there is possibility to view it as business opportunities. Such opportunities often involve reputation and branding but also as mentioned above, lowered risk (Porter & Kramer, 2006). There are many examples of improved brand image and increased corporate reputation (ibid.)

Another aspect of strategic CSR is of course resource optimization. Recruiting talented employees for example is a big cost-cutter and risk minimizer (Grankvist, 2012). Operational risk together with environmental risks can often save huge amounts with low inputs if managed correctly (Porter & Kramer, 2006).

In authoritative journals like the Harvard Business Review, CSR is presented as a source of innovation and a strategy for competitive advantage (Porter & Kramer, 2011). There is a central idea that companies who improve the conditions, both social and economic in the areas in which they operate can simultaneously enhance their competitiveness. Thus, the present opinion of strategic CSR is to work proactively so that the businesses can contribute to the society and create new business opportunities. Instead of work reactively when a crisis or issue occur, in response to stakeholder pressure, which can be very costly. The term used to describe this phenomenon established by Porter & Kramer (2006) is Creating Shared Value (CSV). The term is based on the idea that a business is dependent on a successful community, not only to create demand for its services and products but also to create and contribute to an encouraging supportive society (Porter & Kramer, 2011).

Porter and Kramer (2011) chose to separate the two CSR strategies Responsive CSR and Strategic CSR. And underline their different approaches (2006):

4.2.3 Responsive CSR

Responsive CSR is the traditional form of CSR, which has two key objectives. The first objective is to act as a good corporate citizen, adapted to the social concerns of different stakeholders. It means that companies using responsive CSR cares about their own brand and image in the eyes of their stakeholders. This can be anyone from owners, employees, consumers etc. The actions taken using responsive CSR are often focused on improving the companies' public opinion. Instead of actions in line with being a good corporate citizen, which often are unrelated to the core business. The other objective is broader and covers the full value chain of the company. Since the suppliers and such can have a negative impact from their business, leading to a negative total impact from the end of the value chain. In order to tackle those issues, companies need a tailored internal process says Porter and Kramer (2006). The more standardized process of measuring and monitoring environmental and social risks rarely covers the levels further down in the chain (ibid.).

4.3 Creating Shared Value

Porter and Kramer (2006) provide a clarification of how CSR has evolved. Companies are showing concern for their impact on the environment, but also start to study the social consequences of their activities. Even if they still have a lot to do in terms of activities with positive effects on the whole society. One reason can be that companies often miss the link between society and the business. Which leads to a general CSR strategy not tailored for their specific situation. When business strategy and the CSR strategy is widely separated, the positive effects on the society remains absent. Moreover, it hinders companies from gaining competitive advantage and using the increased costs of the CSR strategy as an opportunity (Porter & Kramer, 2006).

Porter and Kramer argue that business has been viewed as the major cause of social, environmental and economic problems. Companies seem to gain profits on the expense of the broader community (2011). Even though more business has begun to adopt CSR strategy, they continue to be blamed for the so-called society´s failures. This is because companies are stuck in an outdated approach to value creation that has developed over the past few decades. They still view value creation narrowly and keep optimizing short-term financial performance and the business public image. When they should focus on the more important customer needs and other social factors that contributes to long-term success (*ibid.*)

The concept of shared value strives to connect the societal and economic progress. "It has the power to unleash the next wave of global growth" (Porter & Kramer, 2011). There are essentially three ways that companies can create share value opportunities. These are:

- By reconceiving products markets
- Redefining productivity in the value chain
- Enabling local cluster development

If companies look at opportunities while considering shared value, it can lead to even greater innovations and growth both for the companies and benefits for the society (*ibid.)*

Business and society stand against each other in the neoclassical thinking. In order to provide societal benefits, a common belief is that the economic returns have to be lower. A requirement

for social improvement, such as safety of hiring the disabled, has been regarded as a liability for the corporation. It is said that it reduces profits while raising costs (Porter & Kramer, 2011).

Porter and Kramer (2011) Says that even though NGO's and governments holds the main responsibility when it comes to handling social problems, the real long-term problem solver are the corporations. They stress the importance of corporations' ability to create social well-being through increased wealth. Moreover, they believe that by weakening business competitiveness through regulations, governments and NGO's reduce overall wealth and so the foundation of their financial aid (Porter & Kramer, 2006).

According to Porter and Kramer (2006) the interdependence between a company and society, takes two forms. Those are:

- **Inside-out linkages**: Almost all activities in a company´s value chain relates to the society and can either a positive or negative impact.
- **Outside-in linkages**: Companies operates in a competitive context where external social conditions become a key part of their ability to carry out their strategy. External effects can be both positive and negative.

Furthermore, the authors divide the social issues into the following three separate categories (2006):

- **Generic Social Issues**: Here belong social issues that are not significantly affected by the companies own operations or their ability to stay competitive in the long-term.
- **Value Chain Social Impacts**: Covers the social issues that are significantly affected by the company´s operations and activities.
- **Social dimension of Competitive Context**: These are social issues connected to the external environment that significantly affect companies underlying factors of competitiveness in the areas where they act.

In order to contribute effectively to the society as a company going forward, a successfully implemented CSV-strategy or strategic CSR approach should combine and consider all of the above-mentioned aspects. This means that companies have to value issues that have a direct impact on society. Typically, companies tend to integrate CSR strategies, which enhance their own brand in the short-term instead. Such strategies stretch from donations to NGO's to marketing campaigns with promises (Porter & Kramer 2011).

Porter and Kramer (2011) further explain how Shared Value is created. The traditional way of viewing value creation is through a profitable business that gives a financial value. Shared value comes from a broader perspective. A company that builds a supportive industry cluster at the company´s location or redefining productivity in the value chain for example. This concept kind of redefines the fundamental boundaries of capitalism. By comparing companies' success with the societal improvements, it opens up ways to find new markets and gain efficiency. The ability to create shared value is equally possible in advanced economies and developing countries, even if the opportunities differ according to Porter and Kramer (2011).

The table below displays the main characteristics of CSR and CSV and their differences

Table 2 Characteristics of CSR and CSV by Moore, 2014 (own modification)

Corporate Social Responsibility (CSR)	Creating Shared Value (CSV)
• Corporate values and corporate citizenship • Corporate philanthropy: Sharing money the company has already mad • Contributions-in-kind, pro-bono service and volunteerism: Sharing the company's products, expertise, talent and time • Corporate sustainability • Cause related marketing • Compliance with the community, national and international standards • Reputation management • Employee recruitment & retention • Risk management: changing business practices in response to external pressure • Typically led by CSR, Marketing, Corporate Communications, External/Public/Government Affairs, Community Relations, Sustainability and Foundation departments	• Design new products and services that meet social and environmental needs while simultaneously delivering a financial return • Access new markets • Reconfigure and secure the value chain by tapping new or better resources and partners to improve productivity • Improve the capabilities (skills, knowledge, productivity) of suppliers • Create local clusters to strengthen and capture economic and social benefits at the community level • Deploy corporate assets to achieve scale and spur investment • Typically led by CEO, senior executive team and individual champions across the company in close collaboration with corporate affairs and sustainability departments.

The idea that companies that improve the conditions, both social and economic in the areas in which they operate might create competitive advantage is interesting. Issuing green bonds can possibly enhance the environment or social conditions in the area of the specific project (Porter & Kramer 2011). Therefore, studying if investors that invest in green bonds might benefit from the same is relevant.

4.4 Portfolio Theory

The concept of portfolio theory stretches more than half a century back in time. One of the well-known economists named Harry Markowitz introduced the Modern Portfolio Theory. The seminal work of Markowitz (1952) was built on the expected utility framework developed by Bernoulli (1738). The author connected standard deviation and expected return in order to construct an optimal portfolio.

Modern portfolio theory contains a set of theory that attempts to describe asset pricing and develop optimal investment portfolios by maximizing return at a certain risk. According to Markowitz (1952) investors consider expected return as a desirable thing and variance in return is an undesirable thing. Further, he says that investors should strive to maximize the returns and future value. Mogdliani and Miller (1961) used this to develop the theory of the rational investor. When they came up with the theory they assumed perfect information and that all investors had the capability and know-how to maximize the return on their capital. Later, Sharpe (1964) came up with the CAPM, Capital Asset Pricing Model. Markowitz, Mogdliani and Miller influenced Sharpe. The CAPM is a model that connects the values of the underlying assets on the capital markets. In order to get maximum risk adjusted return, these theories come to the conclusion that a diversification strategy is preferred. Investing in different assets lowers

the impact from asset specific risks and the investors get exposed to the systematic risk built in the markets.

As mentioned above, the MVO (Mean-Variance Optimization) framework developed by Markowitz (1952) by claiming that a portfolio optimized for either a given level of expected return by minimizing risk, or for a given level of risk by maximizing the expected return. The model uses standard deviation as risk measure and is defined as the square root of the variance.

4.4.1 Value-at-Risk

There is an issue with the Markowitz framework, which is that it uses standard deviation as risk proxy, which is argued to not take into account real downside risk. To solve this matter, RiskMetrics of JP Morgan introduced the Value-at-Risk (VaR) in 1996 and afterwards actors on the market decided to maximize returns with respect to this risk measure. Markowitz himself criticized standard deviation as a risk measure in 1959 and proposed semi-variance to replace it.

VaR is a widespread risk measurement commonly used in order to monitor the market risk for financial assets or portfolios. This method is widely used by asset managers and other actors on the market (Hull & White, 1998). The implementation of VaR became compulsory for banks through the Basel II regulations in 1999. It also became the most commonly used market risk exposure metric. VaR measures the maximum possible value variation in a portfolio or a specific asset during a specified period with a certain level of probability (Manganelli & Engle, 2001). VaR can be explained as a tool to map a worst-case scenario in an investment. It consists of the three components: a period of time, a level of confidence and a lost amount (*ibid.)* The fact that VaR is measured with only one number or parameter is one of the main attractions with the method. Compared to many other more advanced metrics, VaR is more intuitive. It is fairly easy to understand and provides the user with an overview of the current risk level, which has made it popular in all different kinds of industries. It is used to find out how much value that can be lost with a certain confidence (e.g. 95% or 99%) Managers can set general risk targets to assist in decision-making on risk objectives and place limits, with the help of VaR. Moreover, using VaR can be effective when evaluating performances of different business units after implemented projects and for determining internal asset allocation (*ibid.*)

VaR is relevant for this study since it can help to explain why investors exclude (or include) a certain instrument in their portfolio management. If a green bond for instance is less volatile than other bonds or if the downside in case of a market collapse is smaller, it might explain why investors chose to invest (or not invest) in green bonds.

4.5 Ethical Investments

Ethical investments are usually investments that take ethical factors into consideration. It can also be environmental factors (Kreander, et al. 2005). Investing in companies or instruments that consider these factors can be considered an action by investors to profile themselves and in that way, fulfill their own CSR-goals (Porter & Kramer 2006). One reason to fulfill these goals can be to generate competitive advantage as well (*ibid.*)

Grankvist (2012) gives an explanation of ESG, short for Environmental Social Governance. It is a relatively unusual term outside the financial industry where it is used frequently, although with a slightly other meaning. Freely explained the term means “environmental and social

governance", which stems from a relationship with the concept of corporate governance. Corporate governance deals with the principles for how a company should be governed. In order to assess a company´s ability to handle current and emerging risks, and their impact on the company´s future ability to generate profits to its owners/shareholders, analysts must be able to assess the mechanisms available to handle those risks. The ESG perspective brings a defensive view of the area where risk minimization, rather than opportunity maximization, is in focus. This is usually noticed in discussions with financiers (*ibid.)* By understanding the context of the term, it is easier to understand when investors try to say that they are considering it important that a company takes as much responsibility as their society believes they need to take. In the eyes of the same investors, this is important to ensure that both the company and their products or services are considered attractive in a market that expects companies to take a certain measure of social responsibility according to Grankvist (2012).

Socially Responsible Investments (SRI) also called ethical investments are investments made in instruments selected with non-financial ethical criteria (Kreander, et al. 2005).

Hamilton et. al. (1993) are the authors behind one of the first articles about SRI funds, define hypotheses for performance differences between SRI and conventional funds. They come up with three hypotheses with theoretical arguments for each hypothesis, where they hypothesize neutral returns, excessive returns, or lower returns for SRI funds. The study does not show any difference between SRI and conventional firms when measuring excess return.

4.6 Summary of theoretical background

The findings in the literature review are connected to the theories presented above. Those are considered to be relevant in order to reach the purpose of this study. In the table below, the key concepts, theories and references are showed in a summary.

Table 3 Summary of Concepts and Theories (own design)

Concept	Theory	Description	Key references
Corporate Social Responsibility (CSR)	• Strategic CSR	Since CSR is a wide concept there are a lot of ways to conduct CSR activities. Strategic CSR is a way to incorporate CSR in the foundation of a business	Porter & Kramer (2006) Grankvist (2012) Garrigá & Melé (2004)
Shared Value	• Creating Shared Value (CSV)	CSV comes from CSR activities and actions taken by a corporation to create value to the society around itself.	Porter & Kramer (2011)
Portfolio Theory	• MVO • CAPM • VaR	Portfolio theory has many different methods and models to minimize risk and maximize return. In order to get a high as possible risk adjusted return, the models chosen will be matched against the study cases to find evidence for this.	Markowitz (1952) Sharpe (1963) Hull & White (1998) Manganelli & Engle (2001) JP Morgan (1996)
Ethical Investments	• ESG • SRI	There are terms for guiding factors to look after when conducting analyzes and screening on companies to invest in. One of these is ESG, which take three factors into consideration. SRI is closely connected to ESG but is an own type of instrument or asset class.	Hamilton et. al. (1993) (Kreander, et al. 2005) Grankvist (2012)

To summarize the chapter, a pressure from regulations and the society has pushed corporations to take actions to show that they are compliant and are good corporate citizens. Corporations achieve this through different strategies of how to communicate their actions for example. These strategies often come from Corporate Social Responsibility (CSR). CSR is a broad concept used by corporations to take value-creating actions. These stretches from shared value and marketing campaigns to risk mitigation. One of the concepts that will be the starting point for this study is *Creating Shared Value* by Porter & Kramer (2011). This will be used when analyzing the empirical results together with *Strategic CSR* to see whether investors value soft factors in their operations. Also, the MVO by Markowitz (1952) and CAPM by Sharpe (1963) will be used to find evidence in the empirical results through portfolio optimization. The method called VaR will be used as an alternative to CAPM and MVO to evaluate the investors view on downside risk. These concepts and theories fit the study well since green bonds might be considered both a risk minimizing instrument and a value-creating instrument. In order to find out if green bonds are one of these or even both, the concepts presented in the literature review will build the conceptual framework and be the starting point for this study.

4.6.1 Starting point for this study

The starting point for this study is mainly three theories and concepts. The first is *Strategic CSR*, which is a strategy corporations can use in order to gain both competitive advantage and other values from Corporate Social Responsibility. Together with *CSV* - Creating Shared Value these two will form the non-financial concepts used to analyze corporations' investment strategies. The financial concept comes from *Portfolio Theory* and are basically different risk mitigation tools used for portfolio optimization. Investing in green bonds might have more than one explanation and therefore all these concepts from different fields are relevant for the study.

Going back to the research questions, the theoretical background will form the questions to the interview guide.

4.6.2 What values can be obtained from investing in green bonds?

As mentioned earlier, competitive advantage comes from using a different set of activities to deliver a unique set of values. One way to do this is through Strategic CSR. The strategy focuses on CSR-activities with the goal to deliver value and gain competitive advantage (Garrigá & Melé, 2004). Instead of just viewing CSR as time-consuming regulations, the advantages of using it as a proactive strategy are many according to Porter & Kramer (2006). To see whether asset managers and asset owners' uses this type of strategy through investing in instruments that are green/ethical is crucial to this study. The reason for them doing that could be increased brand reputation for example.

Operational risk together with environmental risks can often save huge amounts with low inputs if managed correctly (Porter & Kramer, 2006). Lending out money to companies that consider these aspects can have an impact on the companies' future profit. If the investor also takes these factors into consideration, it is likely that the monies invested are allocated into companies with similar strategies.

Porter and Kramer (2011) explain how Shared Value is created. One way of doing this could be to support projects that improve the environment or society. Green bonds can finance such projects. As mentioned in the literature review, the concept of shared value strives to connect the societal and economic progress. To do so, companies should look at opportunities while considering shared value; it can lead to even greater innovations and growth both for the

companies and benefits for the society (ibid.) The empirical information will be analyzed to find any evidence for green bonds as a way for investors to achieve this when they build their portfolio.

Explained in the literature review, the Mean-Variance Optimization framework was developed by Harry Markowitz (1952) and is a measure used to optimize a portfolio. It could either be for a given level of expected return by minimizing risk, or maximizing the expected return for a given level of risk. If a green bond can help to optimize a portfolio to gain value, will be analyzed later in the study. The other concepts within portfolio theory will also be used to find out what values that can be obtained from green bond investments.

4.6.3 What consequences does the green bond investment give in relation to the investor´s sustainability strategy/profile?

Strategic CSR can be used in order to be proactive when it comes to environmental risks and to be compliant with regulations according Porter and Kramer (2006). Strategic CSR can be part of a company's sustainability profile and companies can meet their predefined profile through various CSR activities. If green bond investments can be seen as a CSR activity to be proactive and compliant with regulations, will be analyzed in the empirical information from the interviews.

4.6.4 Why are investors interested in green bonds?

This question connects to many parts of the theoretical Background. To give an understanding of why investors invest in green bonds will be analyzed with strategic CSR, CSV and portfolio theory to find evidence for any drivers to invest in those instruments.

There are different ways to optimize a portfolio to give maximum profit at a certain risk level. The relevant theories found in the literature review on portfolio theory will be used to answer this research question. The MVO mentioned earlier, together with the CAPM, founded by Sharpe (1964) will be both be used in the analysis. CAPM as mentioned in the literature review, is about maximizing risk adjusted return. This theory will be used to determine if there are any differences between asset managers and asset owners when it comes to their diversification strategy. This theory will also examine if investing in green bonds can be part of a diversification strategy to lower asset specific risks. VaR will be used as an alternative to MVO and CAPM to investigate whether investors can lower the maximum possible value variation in a portfolio by investing in green bonds. This theory will be used equally for asset managers and asset owners.

4.6.5 Which green bonds are investors interested in?

Also, this research question will be answered by connecting all previous mentioned theories. There are different green bonds on the market when it comes to duration, maturity, coupon and financed project etc. If the difference between green bonds with those factors in regard, attract different or the same investors will be analyzed with CSR, CSV and portfolio theory.

This question will be answered with the assumption that some green bonds are more attracting than others and the theories will help to answer how and which they are.

5 Empirical study

This chapter presents the empirical results and findings from the qualitative interviews. It begins with a brief description of each investor that was interviewed. The theoretical framework formed the questions in order to locate evidence in the interviewed investors answers. Next follows a presentation of applied CSR strategies and portfolio theory followed by observed competitive advantage and created shared value. The chapter ends with a summary of investors' drivers and motivation for sustainable investments.

5.1 Interview respondents

This section presents the interview respondents. The first two interviewees, Erika and Helena, provide the empirical information from an asset manager perspective. The last two interviewees, Mats and Gunnela provide the empirical information from an asset owner perspective. Mikael from Humlegården Fastigheter AB was interviewed to get perspective from a bond issuer, and provide key information in this study. All cases interviewed, are invested in green bonds or in Humlegårdens case, have issued a green bond. The investors were separated into the two sub-groups asset managers and asset owners, to see whether their portfolio strategy and/or sustainability profile differs. The size of the interviewees differs a bit in terms of AuM (Assets under Management). In all cases, the financial or fund manager at the company was interviewed except from one case (Handelsbanken Liv) where the sustainability manager was interviewed together with the fund manager.

Table 4. Cases, types of investor and issuer (own design)

Investors		**Issuer**
Asset Managers	**Asset Owners**	Humlegården Fastigheter AB
Öhman Fonder	Handelsbanken Liv	
SPP	Svenska kyrkan	

5.1.1 Erika Wranegård, Öhman Fonder

Erika works at Öhman, which launched a green bond fund last fall. This is the third green bond fund in Sweden and Erika manages this fund. Öhman is a Swedish asset manager founded in 1906, private owned since the start. The founder, Emerik Öhman did not have any children which made one of his closest co-worker, Dinkelspiel to inherit the firm in the 1930s. The firm is still owned by the Dinkelspiel family and they aim to run the business in a sustainable direction (pers. com., Wranegård, 2018). The goal set by the owner-family is to have a sustainable, profitable growth. This is heavy indorsed into the company (ibid.).

Öhman invest capital in equity and bond funds. The Total AuM is around 85 billion SEK. They also have a private banking division with discretionary asset management. The green bond fund was launched in the end of 2017 (pers. com., Wranegård, 2018).

5.1.2 Helena Lindahl, SPP Fonder

Helena is responsible for SPP's green bond fund, which was one of the first green bond funds in the world (pers. com., Lindahl, 2018). SPP is one of the largest pension companies, owned by Storebrand, the largest Norwegian company in that sector. SPP was acquired in 2008 and the Swedish fund management was decided to stay in Stockholm while the rest of the asset

management resides in Oslo, Norway. The total AuM is around 70 million euro per December 2017. Six months ago, Skagen Fonder was also acquired and together with Delphi Fonder owned by SPP as well, they form one of the largest pension fund managers in Sweden (*ibid.)*

5.1.3 Mats Nilsson, Handelsbanken Liv

Mats Nilsson is responsible for the fund offering, Sustainable Investments & Market at Handelsbanken Liv. Handelsbanken Liv is Handelsbankens insurance company and they are currently invested in green bonds in several of their funds. Handelsbanken Fonder (Handelsbanken´s fund company) was given the mission to manage Handelsbanken Liv´s traditional fixed income funds called Traditional Funds. There are 14 Traditional Funds to manage and they mostly contain interest-bearing instruments such as bonds. Mats were interviewed together with Alexander Gullnäs, Fixed Income Portfolio Manager at Handelsbanken Fonder and Lina Palmborg, Investment Manager at Handelsbanken Liv. To get a deeper understanding of how they decide to invest in different bonds, the combination of the responsible for the fund offering, the Portfolio Manager together with the Investment Manager gave good results.

5.1.4 Gunnela Hahn, Svenska kyrkan

Gunnela is Head of responsible investments at Svenska kyrkan (the Swedish Church), an asset owner with around eight billion SEK in AuM which is invested ethical and sustainable instruments. Svenska kyrkan is currently invested both directly and indirectly in green bonds through funds. For example, they own a share in SPP´s green bond fund. Svenska kyrkan also manages a smaller portfolio with shorter horizon where the biggest part is invested in low-risk assets.

5.1.5 Mikael Andersson, Humlegården Fastigheter AB

Mikael Andersson, CFO at Humlegården Fasigheter led the issuance of their first green bond in June 2017. Länskförsäkringar Group owns Humlegården, which owns about 50 properties in Stockholm. Their main business is to own, manage and rent out properties. In the last decade, more and more companies want to rent offices in certified buildings. These certifications have different criteria and many of them are climate and sustainability related. Also work environment factors such as level of natural light and bike storages define the certification according to Mikael (2018). Their green bond issuance will finance these types of certifications.

5.1.6 The issuers perspective on incentives to issue green bonds

Humlegården Fastigheter AB is a Swedish real estate company owned by Länsförsäkringar, a Swedish insurance company. At Länsföräkringar, they work with a long horizon and they have had an ambition and goal to implement sustainability throughout their organization. Humlegården owns approx. 50 properties in Stockholm. They have a goal to reach the UN´s sustainable development goals (pers. com., Andersson, 2018).

Andersson was responsible for Humlegården`s first green bond issuing in June 2017 at 1250 million SEK with maturity five years ahead. The credit margin was set to 1,35% according to Mikael (2018). This bond was issued to finance a series of projects to achieve the highest possible climate classed property. The reason to issue a bond was a purpose solution and the goal is that all financing should be classed as green within the next coming years. Humlegården have a green framework, which guides them in their climate certification of their properties. In order to certify a property, there are specific guidelines to follow (pers. com., Andersson, 2018).

The process to issue a green bond is relatively short, from planning to issue. It takes no more than a few days according to Andersson (2018). The time-consuming part is to get the infrastructure and framework in place.

Humlegården reports to the investors with a letter that explains the project and the process once a year to show how the proceeds are allocated correctly. The money is bound to the specific projects through our cash pool says Andersson (2018). A big part of this is mentioned in the annual reports and does not require too much work (*ibid.*)

Andersson (2018) mentioned that they used CICERO to perform the second opinion in their issuance. The second opinion was not too expensive, and if Humlegården issue another green bond, it will be under the same framework and the one-time cost will get lower as more bonds are issued (pers. com., Andersson, 2018).

When it comes to certified properties, the reason for Humlegården to get a certification is to lower the risk in the property for example. This can also lead to a higher valuation of the property and stronger demand from tenants. It has also increased the environmental awareness among the employees at Humlegården (pers. com., Andersson, 2018).

According to Andersson (2018) they also attract more investors through green bonds, more investors wants to invest. Humlegården have noticed more attention and a higher demand for the green bond. As a result, Humlegården will reduce their borrowing costs and refinancing risk in the long run (pers. com., Andersson, 2018).

5.1 Green bonds in comparison to conventional bonds

Erika Wranegård, Öhman Fonder

Erika Wrangeård (2018) mentions that Öhman works with screening and exclusions, first and foremost Öhman exclude all companies within alcohol, tobacco, weapons, pornography and exploration and production of fossil fuels. Öhman then actively choose companies that have a good affirming ESG profile.

“Companies that issue green bonds usually have a very good ESG profile” (pers. com., Wranegård, 2018).

Öhmans green bond fund includes a share in covered bonds, which are secured mortgage bonds for liquidity reasons, but the main part, 95% of the fund is invested in green bonds *(ibid.).*

The information and reporting that comes with green bonds increase the transparency and it shows that the issuer have the capacity to manage the detailed reporting. It shows that the issuer is a well-managed company, because it requires more of the issuer to provide us with the information according to Erika (2018).

The purpose of the financed project is important to Öhman, in order to track the use of proceeds (*ibid.)*

“For an example, if a company issues a green bond to finance something outside their normal business or operations, it is important to know the purpose. It also increases the transparency as mentioned earlier.” (pers. com., Wranegård, 2018).

Normally when Öhman invest in conventional bonds it is according to general corporate purposes and then Öhman as investor have no insight in the use of proceeds (pers. com., Wranegård, 2018).

“Often it's not just that info we get in the green framework itself or in the second opinion or impact reporting. We get closer contact with those who issue green and we have a better dialog with the issuers.” (pers. com., Wranegård, 2018).

Öhman have seen an increasing demand for green investment opportunities from their clients and prospects. To meet the increased demand Öhman launched a green bond fund. A high demand for the green bond fund was noticed. The AuM in the green bond fund is approximately 500 million SEK and mostly involves green corporate bonds. Many real estate companies have issued green bonds. Öhman also noticed strict sustainability considerations in these companies (pers. com., Wranegård, 2018).

“One example is Fabege, a real estate company which issued a green bond before they were rated. After they were rated the yield spread decreased by 25-30 basis points (0,25-0,30%) this had an impact on Öhman´s decision to invest. Another example is Vasakronan Fastigheter that increased their cash flow with around 200 million SEK per year from energy savings. ESG analysis, credit analysis and analysis of the green framework are factors that impact the investment decision” (pers. com., Wranegård, 2018).

Helena Lindahl, SPP Fonder

SPP started to invest in green bonds in 2012. The company talked about sustainability and how they should focus on the equity portfolios and property investments. Since they also invest in debt capital market instruments, they decided to focus on sustainability in the bond portfolio as well. They believe that more transparency leads to better investments, especially if they do not have to give up any economic return. SPP started their dedicated green bond fund in 2015. The today´s value of the fund is approx. 3,72 billion SEK (pers. com., Lindahl, 2018).

When SPP released the green bond fund the demand from other investors was high. SPP invest in both Swedish and international green bonds. They have bonds from Supra-nationals (multilateral banks) like the World Bank, European Investment Bank and African Development Bank. They also have a lot of real estate bonds and bonds from municipalities (pers. com., Lindahl, 2018). The fund consists of about 40-45 different green bond issuers with different duration and maturity. It is composed as any other bond fund. The structure is exactly the same, except from that it includes the green framework and a second opinion. Regarding the economic return, SPP start to see a premium but it is extremely small (*ibid.*).

“It is impossible to say that the green bond is a more expensive asset class” (pers. com., Lindahl, 2018).

If the risk is lower in green bonds than conventional bonds is not crystal clear, but companies that issue green bonds have a low risk profile overall in their operations according to Lindahl (2018). The issuer group has a rigorous CSR profile and has a long-term vision in general. This

compared to an issuer group that has not considered these factors, have a higher degree of risk. When comparing a conventional bond and a green bond issued by the same issuer, the risk is the same (pers. com., Lindahl, 2018).

"There is an asymmetric liquidity in green bonds, they are hard to buy but easy to sell right now. The discussion whether they are more liquid than conventional bonds over all is hard to say" (pers. com., Lindahl, 2018).

Investing in green bonds is a way for SPP to affect governance and ownership in their investments, since the investor relations in the bond market are more absent then in the equity market according to Lindahl (2018).

Mats Nilsson, Alexander Gullnäs and Lina Palmborg, Handelsbanken Liv

Handelsbanken Liv has a yearly guarantee towards their beneficiaries that sets the mandate for how they shall invest their money. Handelsbanken Liv´s board sets the rules for how the portfolio managers operate. Handelsbanken Liv cannot take too much risk since they need to meet the yearly guarantees of a yield at 3-5% (pers. com., Nilsson, 2018).

Green bonds were included in Handelsbanken Liv´s portfolios to fulfill their sustainability criteria and to be in front when it comes to the transformation of the financial sector into a more environmental sustainable one. Handelsbanken Liv wants to be ahead when it comes to reach the Agenda 2030 goals.

"There are enormous amounts invested into high greenhouse-gas emitting companies, and Handelsbanken Liv wants to take part in the change from fossil fuel investments to green alternatives. If institutional investors choose to do so, the impact will change the world" (pers. com., Gullnäs, 2018).

Handelsbanken Liv aims to be in top in this area and show that they invest in green instruments such as green bonds. Their ambition is to have a larger part of green bonds in their portfolios in the future. Handelsbanken Liv might have been a little weak when it comes to marketing of their holdings, but that will change and there is more to come according to Gullnäs (2018).

"*Handelsbanken Liv has a new fund in the pipeline that we cannot talk too much about, but it will fit the purpose" (*pers. com., Gullnäs, 2018).

The green bonds available on the market are mostly municipality property and real estate bonds as it looks today according to Gullnäs (2018). Handelsbanken Liv also bought bank issued green bonds, but the purpose of the issuing was a real estate project (*ibid.).*

"*Regarding the information we get from the issuer, green bonds often finance climate certification of properties and we trust that CICERO and Sustainalytics do their job and verifies the use of proceeds. Since we mainly invest in Swedish government and state bonds, the level of corruption is low. Regarding the real estate projects and certifications, energy efficiency and a good working environment is of course positive. We would like to see more sectors issue green bonds, it is something that will come in the future"* (pers. com., Gullnäs, 2018).

The requirement from Handelsbanken Liv is to always choose a sustainable option before non-sustainable options if they are similar in duration and yield (pers. com., Nilsson, 2018).

According to Handelsbanken Liv, green bonds tend to give a marginally lower return, in terms of a few basis points according to Gullnäs (2018).

"*Swedbank issued a green bond right before Christmas last year and it came in very tight, it was traded under the curve. We have to take the return into consideration when we invest. It cannot be too expensive since we have a guarantee return. "* (pers. com., Gullnäs, 2018).

Handelsbanken Liv are willing to go down a few basis points in return to get a green bond in their portfolios, nevertheless they have to consider yield and duration regardless of whether it is a green bond or not (pers. com., Gullnäs, 2018).

"*Another example is that we do not buy bonds just because they are green, we also make an assessment of the issuer. If a company that according to us is non-sustainable but want to finance a green project, we have to think twice. We want to help companies that want to change but we always do our analysis. Sometimes helping them in the right direction is something we value high "*(ibid.)

The pension fund has a net outflow since it is pension money paid out each year. That means that the proportion of the fund invested in green bonds increases when conventional bonds are sold first (pers. com., Palmborg, 2018).

The AuM in the portfolio Alexander Gullnäs manages is around 6,8 billion SEK whereof close to 400 million is invested in green bonds, around 5 %. The total amount invested in green bonds in Handelsbanken Fonder´s fixed income division is close to 8 billion SEK.

"The credit fund can invest in non-investment grade and therefore it is easier to reach large amounts invested in green bonds" (pers. com., Nilsson; Gullnäs, 2018).

Gunnela Hahn, Svenska kyrkan

Svenska kyrkan was one of the first to invest in green bonds and bought the first green bond issued by SEB together with the World Bank in 2008. Svenska kyrkan also signed the PRI (Principles for Responsible Investments) in 2007 and the principles are part of their financial policy according to Hahn (2018)

"*For instance, one of the principles is about influencing others in the financial market, which we do. We have come to realize that eight billion SEK is not that much if we compare to pension funds, insurance companies, banks etc. But if we can influence them to take more responsibility and see that it creates value, both financially and in sustainable terms, we can do more than if we just focus on our own portfolio"* (pers. com., Hahn, 2018).

Svenska kyrkan has 15-20 different portfolios, most of them in mutual fund structures, open to others. The assets are invested in Swedish equity, global equity, Swedish bonds, corporate bonds, alternative investments, real estate and emerging markets says Hahn (2018). The allocation between the asset classes are made after a financial model that allows Svenska kyrkan´s different portfolios to meet the desired risk adjusted return (pers. com., Hahn, 2018).

"*Even in the "regular" portfolios, there is a sustainability focus involving equity investments and corporate bond investments. The sustainability criteria should be applied to all asset classes, where possible" (ibid.).*

Svenska kyrkan mainly invest in mutual funds. In Svenska kyrkan´s external portfolio that the board of the church is responsible for, they invest in both equity and fixed income funds. When it comes to fixed income funds, Svenska kyrkan prefers green bond funds (pers. com., Hahn, 2018). There are not very many green bond funds on the market but one of the funds Svenska kyrkan invested in is the green bond fund by SPP, where they invested about 300 million SEK (ibid).

"*Svenska kyrkan have a very long investment horizon and when SPP first released with the fund we invested with the belief that other institutions would invest in it as well. Many investors buy single bonds instead of bond funds and SPP wants the green bond funds to increase, which is something we at Svenska kyrkan also believes is the right way forward"* (pers. com., Hahn, 2018).

5.2 Green bonds from a portfolio optimization perspective

Erika Wranegård, Öhman Fonder

A fund's investment mandate can be compared with an issuers green bond framework. It is the obligations and commitment Öhman make and framework within which they can operate. It is their sales team assignment to identify different clients risk-level and which fund that best suit the clients risk profile (pers. com., Wranegård, 2018).

Since Öhman measures the risk in the issuing company, the risk in green bonds is the same as in a "brown" bond issued by the same company according to Wrangeård (2018). The probability that the issuing company goes default is the same.

ESG covers all types of risk and how Öhman should adapt their business model. It can decrease the risk in the company because all the risks are analyzed and an action plan is prepared. That is also a part that can generate attractive risk-adjusted return according to Wranegård (2018).

"Green bonds tend to be priced a few basis points higher than conventional bonds. That does not automatically mean that it is a bad investment. It also depends on the investors investment horizon, it can still be a good investment even if it is priced tighter. Green bonds are usually easy to sell but hard to buy which could give holders of green bonds lower liquidity risk" (pers. com., Wranegård, 2018).

Öhmans other fund "the Sustainable Fund", contains of 14% green bonds in comparison to the total Swedish bond market where green bonds amount to around 4% of the market. If the share in green bonds in Öhman´s portfolios will increase in the future depends on the supply of green bonds on the market. Another factor is the issuers ESG-profile, as issuers have to meet Öhman´s high ESG-criteria. The factors we look at are the value in the instruments given the credit and ESG-risks and level of liquidity says Wranegård (2018).

"Being invested in green bonds has been good, but the banks now start to tighten the price setting a lot and it does not look equally good now as before. We have to be more active in our mandates where we own green bonds and take part in the primary market transactions and maybe look at removal in some holdings" (pers. com., Wranegård, 2018).

Helena Lindahl, SPP Fonder

The intention with SPP´s sustainability profile is to find prospective investments that are well positioned for future development in terms of sustainability and regulations according to Lindahl (2018). Initially, it is primarily driven by value creation, and to avoid being positioned in industries that are about to go out of business. A long perspective is preferred (pers. com., Lindahl, 2018).

"It is also a matter of risk, if a good sustainability department can find signs of corruption in a company it is very good since those issues can make markets and interest spreads to drop (or spike) in no time" (pers. com., Lindahl, 2018).

In some sectors, there is a direct correlation between lowered risk and green bond issuance. One of those is the real estate sector. If a real estate company finance energy efficiency of a property that leads to a certification, they attract more tenants and can charge marginally higher rates. When the property becomes more attractive, it lowers the degree of vacancy and in that way, lowers the overall risk in the company (pers. com., *Lindahl, 2018).*
According to SPP, this is one reason to invest in green bonds. One purpose of financing companies is to improve and sustain their business and if green investments can improve the issuer even faster, that is something SPP appreciates (*ibid.).*

Mats Nilsson, Alexander Gullnäs and Lina Palmborg, Handelsbanken Liv

According to Gullnäs (2018) the risk in green bonds compared to conventional bonds is similar. Green bonds might parry a sell-off in the market better, since the demand is a bit higher and the liquidity is better in green bonds.

"If we need to sell a bond to increase the liquidity, we rather sell a conventional than a green bond. We sell the green bonds last, we have a buy and hold strategy and our main basic rule is to keep the bond till maturity" (pers. com., Gullnäs, 2018).
Handelsbanken Liv still consider some conventional bonds as better investments than green alternatives due to higher yield, a duration that fits the portfolio and the issuing company being a "low risk company or sector" *(ibid.)*

"When it comes to companies that issue green bonds, they make it a big marketing happening that increases the transparency. When we look into green bonds we carefully review the project that will be financed. When we invest in green bonds with AA- S&P rating at the lowest, we know that they are closely connected to and we know that it has a high grade of quality in their issuance and low grade of corruption" (pers. com., Gullnäs, 2018).

The low risk that comes from green bond investments are not lower because of the transparency, it is because of their high credit rating. Handelsbanken Liv notices that those companies also want to be a part of a bigger transformation into a sustainable world. Thus, the transparency gives better insight in the company and they would like this kind of information from conventional bonds as well (*ibid.)*

Gunnela Hahn, Svenska kyrkan

Regarding their investment strategy, they believe it is less vulnerable to invest in funds since it requires less administration for them and lowers the asset specific risks. When it comes to their short-term "church account", they are able to invest directly in green bonds instead of a fund, as mentioned earlier (pers. com., Hahn, 2018). The future investments will most likely be in even more green bonds and sustainable instruments, we want as much as possible to be green. Svenska kyrkan believes that the risk in green bonds is marginally lower than in conventional bonds, and they want more green bonds and other types of instruments with the same purpose *(ibid.).*

*"We wrote an answer to the report on green bonds by Mats Andersson for the Swedish Government that we believe it is very good with proposals. A Swedish Government green bond would be very interesting "(*pers. com., Hahn, 2018).

Svenska kyrkan have noticed that institutions want green bonds and interest-bearing products in their portfolio. Low risk and long duration with a fixed interest rate and availability to predict the return is very attractive since equity is far more volatile, and riskier according to Hahn (2018). Svenska kyrkan proposed a regulation to make all bonds greener and to increase the transparency in conventional bonds. The big difference would be to make conventional bonds greener, they believe that would have a greater impact *(ibid.).*

Their internal liquidity management only contains fixed income assets with short duration, but no funds. This is to gain some return instead of leaving the capital on a bank account with zero percent interest rate according to Hahn (2018).

This is investments in investment grade bonds only since it needs to be low risk. The internal account contains around four billion SEK. Also in this portfolio, sustainability is considered in the same way as in the other asset management says Hahn (2018)

5.3 Value added from green bond investments

Erika Wranegård, Öhman Fonder

The information and reporting that comes with green bonds increase the transparency and it shows that the issuer have the capacity to manage the detailed reporting. It shows that the issuer is a well-managed company, because it requires more of the issuer to provide the investor with the information (pers. com., Wranegård, 2018).

Lately, Öhman have seen some green bonds that have been prices inside the normal curve, which means that if the investor holds a green bond till maturity, they would get a lower return than if they invested in a "brown" bond and kept it until maturity *(ibid.)*

"Since we are an active investor, we are not bound to keep the bonds until maturity and one part in the decision to invest in green is the increased liquidity. Because of the high demand in green bonds, the liquidity is strong if you want to sell a green bond. Even if green bonds are priced inside the curve, it can be spread together in the secondary market because of the high demand" (pers. com., Wranegård, 2018).

The green bond fund is a product Öhman´s customers demand, and especially those who want to contribute to a transformation to a fossil fuel free economy (*ibid.)*

"Öhman can impact in this via impact dialogs, which is an interesting and fun part of the work. We get to be part of and push the market in that direction, meanwhile Öhman wants to provide the best investment possibilities, in form of both performance and impact" (pers. com., Wranegård, 2018).

Öhman´s responsibilities are to push sectors that still not issue green bonds to do so. Companies that improved and met Öhman´s criteria through dialog, has been kept in the portfolio and they can see that they are heading to a positive sustainability journey *(ibid.).*

"It gives knowledge about how sustainability affects the business, it gives a spin over effect. Many companies that issue green bonds have a diverse and mixed board of directors and/or executive group when it comes to men/women share. If a green bond is a signal of a diverse work force issuing a green bond can also be of great signaling value to investors" (pers. com., Wranegård, 2018).

Öhman have seen that companies that issue green bonds have noticed increased CSR activities and a strengthen sustainability profile. That is also backed by Mats Andersson who performed a report on behalf of the Swedish government (Regeringen, 2018) that shows that green bond issuers experience an increased sustainability dialog between different departments within the company. Also, Mikael Andersson at Humlegården Fastigher AB mentions a noticed dialog within the company (pers. com., Andersson, 2018). At Öhman, an increased internal dialog regarding sustainability can be noticed since the launch of the green bond fund (pers. com., Wranegård, 2018).

Helena Lindahl, SPP Fonder

SPP has hired sustainability- / ESG analysts to their asset management. SPP exclude companies on ethics and moral but since that can be relatively subjective, they formed a model where they started to gather environmental and sustainable information from the prospects according to Lindahl (2018).

"Initially, it is primarily driven by value creation, we do not want to be positioned in industries that are about to go out of business. One should be more forward looking than to the next quarterly report, a long perspective is preferred" (pers. com., Lindahl, 2018).

Green bonds are more transparent than conventional bonds due to the richer information from the issuer. With more information comes more transparency. With more transparency, SPP knows what they achieve with their investments (*ibid.*).

"This transparency is nothing that can be seen with any other investment in the debt market. Even if you invest in a sustainable company on the equity market, it is hard to see what direct impact you get, which is possible with green bonds" (pers. com., Lindahl, 2018).

The reputational benefit of green investments is visible, but in a worst-case scenario it can lead to more attention if something goes wrong. In a company with a high amount of AuM like SPP, something will go wrong at some point. SPP the have to be able to explain why says Lindahl (2018). Increased demand for SPP´s products is also visible; the green bond fund has gained a lot of attention. The fund received 5-stars in Morningstar's fund rating which is the highest grade (*ibid.).*

"The high rating was very positive since it sends the signal that you can invest in green funds and still get good returns" (pers. com., Lindahl, 2018).

Mats Nilsson, Alexander Gullnäs and Lina Palmborg, Handelsbanken Liv

According to Gullnäs (2018) Handelsbanken Fonder have its own team of four sustainability analysts. This is an area that has grown a lot in the past 5-10 years and keeps growing. Handelsbanken Fonder are members in PRI (Principles for Responsible Investments) and now have a clear focus towards sustainable investing. Previously, customers looked at absolute return, and then came risk-adjusted return.

"*What we see will happen in the future is that we will measure CO2-emissions in the funds, which currently is only measured in the equity funds, but will soon be integrated in the fixed income part as well"* (pers. com., Gullnäs, 2018).

Going back to the sustainability profile, Handelsbanken Fonder have a common policy on group level. There are guidelines and then discretionary agreements so that everyone in the bank works with sustainability (pers. com., Nilsson, 2018).

"According to asset owners, around 80% believe that Environmental factors are most important, and then comes Social factors and last comes Governance aspect. For investors, almost 75% say that Governance is most important to reach Environmental and Social goals. A good management and a compliant company with a process that governs the operations are crucial Since we mainly invest in Sweden, those factors are considered to be in the top compared to the rest of the world" (pers. com., Gullnäs, 2018).

Handelsbanken Liv obtains value by being part of the transition into a more sustainable society. They believe that in ten years from now the discussion will not be if they should be a part of it, but on how much they can contribute and their carbon footprint etc. Handelsbanken maps their contribution to the different SDG´s (Sustainable Development Goals), which makes it possible for them to measure their contribution. (pers. com., Gullnäs, 2018).

"The change has to come, and we might reach the critical 2 degrees Celsius level. We are the generation that can solve this. There is a huge value in being ahead when it comes to the transformation. It is more important than the economic return in the long run, because it will give a better yield looking forward, that is a fact" (pers. com., Gullnäs, 2018).

Gunnela Hahn, Svenska kyrkan

Svenska kyrkan´s sustainability profile is stated in their financial policy, and in the investment instructions that clarify how the policy should be interpreted by anyone who manages their assets. The church works a lot with sustainability in their other operations and they want the financial parts to be integrated in this and work towards the same goals regarding sustainable development, human rights, environmental consideration (pers. com., Hahn, 2018).

Svenska kyrkan communicate their investments in sustainable instruments such as green bonds in their financial and sustainability reporting says Hahn (2018). Being ethical and consider ESG-aspects is something that is expected from Svenska kyrkan. Otherwise they would get a lot of criticism and they also want to be part of a transformation to more climate and societal friendly investments. The predefined return stated in their financial policy is three per cent per year in real yield over a ten-year rolling period. When it comes to returns from green

instruments Svenska kyrkan believe that they are not giving up any return in comparison to conventional instruments. On the contrary they believe that investing in sustainable and ethical instruments is the only way to generate high returns going forward (ibid.).

"The ground stone when it comes to high returns is that biological and physical values are obtained and then the economic part can be considered. To do this we need a functioning climate and natural resources that sustains together with human wellbeing. Sustainable value creation is the way forward" (pers. com., Hahn, 2018).

Svenska kyrkan tends to look at the S in ESG more now than before, which according to Hahn (2018) is important and also stated in their policy that the companies they invest in shall contribute to the society. As a consequence, it is hard for Svenska kyrkan to measure this when large corporations act in many different countries and involves a big supply chain (pers. com., Hahn, 2018).

"I believe that we have great use of the reporting and information about the use of proceeds that we get when we buy green bonds. We also like the fact that issuing companies notice increased internal dialogue, which can generate spin off effects e.g. more sustainable projects and a higher level of sustainability within the company. About 10% of our capital is invested in assets directed to climate solutions and we hope to increase that share" (pers. com., Hahn, 2018).

Svenska kyrkan also prefer the symbolic value in green investments, as they gain reputation and believe that they can contribute to provide value in the long run. Many other asset owners like municipalities and universities appreciate their policy and try to follow their path to be equally sustainable in their investments as Svenska kyrkan (pers. com., Hahn, 2018). That is something Svensak kyrkan enjoy and one of their goals is to impact other investors to consider sustainability in their investments *(ibid.).*

6 Analysis and discussion

In this chapter the results of the study based on the research questions from the first chapter is presented. The analysis is based on the theoretical framework and the empirical study to be as descriptive as possible. The chapter starts with the research questions and then the analysis is performed.

Research questions:

- *What values can be obtained from investing in green bonds?*
  This research question aims to locate any values that can be attractive for investors.

- *Which green bonds are investors interested in and why?*
  This research questions aims to straighten out which green bonds that are most attractive to investors. It was formulated in order to find out how investors optimize their portfolio with bonds and to find out if the instrument is efficient as risk instrument. Also, other reasons to invest in green bonds connected to CSR and CSV will be located.

6.1 What values can be obtained from investing in green bonds?

By supporting projects that improves the environment or the society can according to Porter and Kramer (2011) lead to new markets and opportunities. The values created by investing in green bonds are many. First and foremost, supporting the green project gives a direct impact, which is easy to follow for the investor. This impact can also have positive externalities stretching from lowered risk in a property to more convenient commuting bike-roads for citizens. All the shared value created links to investors' sustainability profile, and the respondents stresses the importance of active participation in the transformation into a more sustainable society.

Value created by the investment in green bonds according to the respondents has a connection to the increased transparency due to the information and reporting from the issuer. Such transparency in some cases leads to better dialog with the issuer, affect the whole issuing-companies' awareness and internal sustainability dialog. This has a function that will lead to even more focus on sustainability throughout the business and the daily operations according to the respondents. Also, the internal communication within the investing companies increase when green bonds become a part in the portfolio. This influences other departments and other investments, which have led to increased sustainability measures in the total asset management. One of the biggest values for investors is claimed to be the increased transparency as mentioned above. Increased transparency makes the investor more prepared in many different areas; one is compliance where increasing regulations and legislatives may affect an investment. That means lowered risk in the long run which benefits the beneficiary's situation and can be considered a shared value.

6.2 Which green bonds are investors interested in and why?

This research question is linked to the previous one. The empirical results show that investors tend to buy green bonds to fulfill their sustainability profile. The different investors sustainability profile varies, but a common factor connected to Strategic CSR is to focus on the CSR-activities that adds value in order to gain competitive advantage. This according to Garrigá & Melé (2004) is an efficient way of adapting to regulations and expectations from the society and authorities. The advantages of using it as a proactive strategy are many according to Porter & Kramer (2006) and investing in green bonds is one part of it. According to the respondents, increased reputation is a positive thing, and the increased control of being compliant with regulations keep undesirable surprises at a lower probability.

Resource optimization is another level of a strategic CSR strategy. These investors employ ESG-/sustainability-analysts, which get the best effect if they can perform their duties and get authority to point out their opinion. If these analysts can work with a high level of trust and responsibility, the outcome is a better-composed portfolio with fewer companies facing an environmental or social connected risk. Helena at SPP further says that being well positioned when it comes to being invested in companies that may be affected by regulations may increase their profitability in the long run.

Strategic CSR is about being proactive rather than reactive. Being prepared on quick changes in the market, regulations and the society´s opinion is to be proactive. Buying green bonds is to be proactive to some extent according to the common opinion of the interviewed investors.

The investors mention that they exclude non-sustainable sectors from their portfolio management in order to decrease the negative effects from holdings in these sectors. According to Porter and Kramer (2006) CSR activities can be proactive actions as well as reduction of non-sustainable activities. Investing in sustainable instruments is both a proactive and negative impact minimizing action, say the respondents. Also focusing on sustainable instruments such as green bonds is a sustainability strategy to be ahead if new regulations that limit the possibility to invest in non-sustainable instruments, occur.

Going back to the first research question, value creation from green bonds is also a factor why investors want to invest in the green bonds. All respondents mention that they want to contribute to a transformation to a sustainable and fossil fuel-free environment. By investing in green bonds, they believe that they come closer to achieving that goal. The increased transparency is also a benefit from green bonds that in line with CSV can make the investors to follow the impact of their investments. These investments might contribute to the society by a better working environment and a smaller carbon-footprint.

Looking from the portfolio theory-perspective, the respondents mention benefits with green bond investments. The Modern portfolio theory introduced by Markowitz (1952) about developing optimal investment portfolios by maximizing return at a certain risk is seen in all of the respondents' answers. They mention that they do not invest in any green bonds that do not fit the overall portfolios ROI-requirements or risk-level. Therefore, green bonds with the "wrong" term, maturity or yield will not be considered by any of the interviewed investors. Meanwhile green bonds with all the matching parameters fitting the portfolio, almost always is considered a better investment than the conventional alternative, due to the higher transparency. According to Markowitz (1952) investors should strive to maximize the returns and future

value. The interviewed investors all confirm this opinion and as mentioned earlier, no green bonds with the wrong setup is purchased.

The investors also mention in line with Sharpe´s (1964) CAPM, that investment in different assets classes help them to spread the risk in their portfolio. Some of the respondents mention that the increased liquidity in green bonds (easy to sell if owned) help them to diversify and mitigate risk associated with a debt market crash or rising interest rates. Since green bonds tend to be easier to sell then buy right now, they are more easily managed instruments says one of the investors. In order to get maximum risk adjusted return, green bonds can help to construct an interest-bearing portfolio.

Manganelli & Engle (2001) mentions that VaR measures the maximum possible value variation in a portfolio or a specific asset during a specified period with a certain level of probability. The value variation in green bonds are relatively close to conventional bonds, therefore investing in green bonds does not affect the portfolio in a VaR-perspective that much according to the empirical findings.

The empirical results show that the respondents tend to focus on the bonds that fit their portfolio best in terms of duration, maturity, yield and size. The respondents, especially the asset owners' mention that they appreciate green bonds with high credit rating and a "dark green color project" (CICERO, 2018). Even if the purpose of financing is important to the investors, the empirical results show that they tend to value the right yield and maturity higher than the use of proceeds when they construct their portfolios. In accordance with the MVO, CAPM and VaR, portfolio optimization and risk minimizing aspects are considered when the respondents choose investments. Although, the respondents mention that they welcome more information about their financed project and use of proceeds, and would like to get the same information from conventional bonds as well. This is according to the empirical results something all the respondents believe will increase in the future.

6.1 General findings

The overall analysis of the results from the empirical study confirms that green bonds match with many of the factors found in the literature of why companies adapt to a sustainability profile. The study indicates that factors from a portfolio optimization perspective have a minor impact on the decision to invest in green instruments such as green bonds. Furthermore, the interviews conclude that the main factors for the decision to buy those instruments, varies for different firms.

The analysis compares the theoretical factors with the empirical results from this study. Unforeseen findings will also be presented in chapter 6.2.

The first research question that examines what values that are generated from green bonds, clearly show the importance of increased transparency and dialog with the issuer. Increased information of the use of proceeds lead to a concrete creation of shared values which connects to the theory CSV. Another finding seen in the empirical results is the use of green bonds, as an instrument to meet the investors´ sustainability profile needs. The green bonds preferred varies a bit in between the different firms.

6.2 Unexpected findings

A green bond compared to a conventional bond issued by the same issuer, per definition has the same risk of default because of the issuer's credit rating. The empirical information from the interviews with both investors and issuer testifies that a successfully financed green project can lower the risk in the issuing company. As mentioned in the empirical results, a real estate company that finance a project that leads to a certified property, enhance the demand. It also lowers risk associated with higher energy prices and other costs. This certification can lead to a better result bottom-line for the issuer and in the future a better credit rating and then a lowered risk for investors. Also, the internal dialog within the issuing company increases and sustainability becomes a hot topic in the daily business. These findings were not expected before the study and clearly show benefits with green investments, not only for the environment but also for the issuing company and the society in which they act.

7 Conclusions

This is the final chapter of this study and aims to present the main findings and give suggestion for further research.

The aim of this study has been to investigate why investors are interested in green bonds and which green bonds investors prefer. The research was conducted to find out what values that can be obtained from investing in green bonds and how that connects to the investors' portfolio strategy.

The results show that the benefits from investing in green bonds are many. Achieving CSR-goals within the company, gained reputation and better dialog between issuer and investor are some examples. The results connected to portfolio strategy shows that investors do not value all green investments the same. Investors do not leave their portfolio strategy just to invest in a green bond if it does not match the criteria. Even though the respondents mentioned that green bonds could be used as a tool to trim the portfolio. The respondents conclude that the long-term risk may decrease in the portfolio if they invest in products that already have strict regulations. The green bonds preferred by the investors differ with the needs. They all mention that the appropriate yield and maturity explains many of the investment decisions made. All of the investors say that a high credit rating is preferred and in some cases a high rating is required, which leaves them forced to invest in municipal and treasury bonds. Overall the best green bonds are the ones with lowest risk and highest return, which is commonly agreed.

In addition to the same expectation of economic returns that investors have in any bond investment, investors report additional value in green bond investments from improved reputation, increased transparency in the investments, better investor relations, and a moral satisfaction of seeing their investment's direct impact on the environment and/or society

The future for green bonds look bright when examining the respondents' answers. All of them say that they will keep buying green bonds and Humlegården Fastigheter AB´s ambition is that all their financing will be green within the next coming years.

7.1 Future research

An interesting topic for future research would be to study how the interest to invest in green bonds can increase. Green bonds do not give higher return than conventional bonds and to make them a more attractive alternative, other factors may have to be involved.
To study whether the best way to increase the issuance of green bonds and investors drivers to invest in them, can be a way to decrease climate change. The demand for green bonds is already high, but a regulation to increase the transparency in conventional bonds to make them more sustainable could also be an interesting point of view. Regulations to make issuers more or less forced to provide that information and finance more sustainable projects could also be a way to fight climate change.

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Appendix 1. Interview Guides

Appendix 1 shows the interview guides directed to the bond issuers and bond investors. The interview held with Humlegården Fastigheter AB was guided by the questions focusing on the issuing of a green bond. The interviews held with asset managers and asset owners were guided by the interview questions seen in the second picture.