Energy efficiency investments in the commercial real estate business
A study of decision drivers on the Swedish market

Sebastian Öhman
Abstract

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The International Energy Agency has stated that it is more sustainable to improve energy efficiency of already existing buildings, than increasing the national energy production to provide inefficient buildings with even more energy, which would result in that an increased amount of resources required to power the existing energy inefficient building stock. Taken into consideration that buildings in Sweden consume about 40% of Sweden's final energy consumption and count for about 36% of the total greenhouse gas emissions it becomes evident that in order to decrease Sweden's carbon footprint, it is important to understand real estate investors decision-making process.

The aspiration is to provide stakeholders both on a micro and macro level with a better understanding of the real estate investors decision making process. This will enable companies (micro level) in the field to better customize their value propositions and there by enable companies to contribute to decreasing the primary energy consumption of buildings in Sweden. The macro level, referring to governmental institutions, will be provided with a better understanding of what kind of measures can be taken, to increase investments into buildings energy efficiency.

It could be found from the literature reviewed for the study that there is a gap in research what comes to the Swedish market. Majority of the existing literature covers bigger markets e.g. the USA and UK but very little or if at all the Swedish market. During the literature study an existing framework on decision drivers for real estate investors was developed. The study uses mixed method consisting of qualitative and quantitative methods to answer the research questions.

The study showed that the most prominent drivers on the Swedish market were the customers strategic decisions, environmental and energy certificates, reporting protocols, investment horizon, rental agreements, internal investment policies decreased property costs and building specific characteristics.

It was found that the Swedish real estate investors experience very little pressure from the government to increase the energy efficiency of their buildings. It was also found that governmental subsidies are more considered a gamble than an encouragement to invest in energy efficiency due to long processing times and heavy bureaucracy.

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Popular Science Summary

The building stock in Sweden counts for about 40% of the total final energy consumption. Decreasing the buildings energy consumption just with a few percent would have a tremendous impact on Sweden’s carbon footprint and facilitate for Sweden to reach its climate goals for 2050. This thesis aspires to understand what drives real estate investors to increase the energy efficiency of their buildings. Understanding real estate investors decisions making process facilitates for companies providing energy services to better customize their value proposition but it also facilitates for governmental bodies to gain a better understanding of what political actions could be taken to decrease Sweden’s carbon footprint.

The study was conducted using a deductive research strategy, where theory first was reviewed and after that empirical material was gathered from the Swedish market. From the existing literature it could be found that there is very little environmental validity to the existing research due to that the existing research mainly covers larger markets like the U.K and the USA but not Sweden. Therefor one of the aim with this study was to gain a better understanding of the Swedish market. Based on the literature reviewed a framework was developed that function as a guideline throughout the study.

Empirical data was gathered first from secondary data sources to gain a better understanding of Sweden specific driver. Information was gathered from e.g. Swedish pension funds, the Swedish energy authority and the Swedish tax authority. Based on the literature reviewed and secondary data sources a survey was sent out to Swedish real estate investors. To gain a better understanding of the survey result and to be able to answer the research questions better, semi-structured interviews were conducted.

From the empirical data it could be found that on the Swedish market the most prominent decision drivers were customers strategic decisions, environmental and energy certificates, reporting protocols, investment horizon, rental agreements, internal investment policies decreased property costs and building specific characteristics.

It was found that the Swedish real estate investors experience very little pressure from the government to increase the energy efficiency of their buildings. It was also found that governmental subsidies are more considered a gamble than an encouragement to invest in energy efficiency due to long processing times and heavy bureaucracy.
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## ABBREVIATIONS

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<tr>
<td>BREEAM</td>
<td>BRE Environmental Assessment Method</td>
</tr>
<tr>
<td>CDP:</td>
<td>Carbon Disclosure Project</td>
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<tr>
<td>COP:</td>
<td>Communication on Progress (report)</td>
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<td>CSR:</td>
<td>Corporate Social Responsibility</td>
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<td>EEE-F:</td>
<td>European Energy Efficiency Fund</td>
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<td>EPRA:</td>
<td>The European Public Real Estate Association</td>
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<td>ESR</td>
<td>Environmental Social Responsibility</td>
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<td>EU:</td>
<td>European Union</td>
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<td>GHG:</td>
<td>Green House Gases</td>
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<td>GRA:</td>
<td>Green Rental Agreements</td>
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<td>EALC:</td>
<td>Energy Audits in Large Companies</td>
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<td>EED:</td>
<td>Energy Efficiency Directive</td>
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<td>ESG:</td>
<td>Environmental Social and Government</td>
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<td>GRESB:</td>
<td>Global Real Estate Sustainability Benchmark</td>
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<td>GRI:</td>
<td>Global Reporting Initiative</td>
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<tr>
<td>LEED</td>
<td>Leadership in Energy and Environmental Design</td>
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<td>MBC:</td>
<td>Miljöbyggnads Certificat</td>
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<td>MDG:</td>
<td>Millennium Development Goals</td>
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<td>NIB:</td>
<td>The Nordic Investment Bank</td>
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<td>UN:</td>
<td>United Nations</td>
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<td>UNGC:</td>
<td>United Nations Global Compact</td>
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<td>UNSDG</td>
<td>United Nations Sustainable Development Goals</td>
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<td>SDG:</td>
<td>Sustainable Development Goals</td>
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<td>SME:</td>
<td>Small and Medium Size Enterprises</td>
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1 Introduction

The International Energy Agency (IEA) has stated that: energy efficiency, is the most efficient fuel in the world (Marckert 2017). The IEA argues that it is more sustainable to improve energy efficiency of e.g. already existing buildings, than increasing the national energy production to provide these inefficient buildings with even more energy. This would result in an increased amount of resources required to power the existing building stock. On a related topic, a report produced by the European Commission (2013), found that nearly 40% of the final energy consumption in the EU, is consumed by buildings and count for about 36% of the total greenhouse gas emissions. Adding these two reports together, it becomes evident that improving the energy efficiency of the existing building stock, plays a crucial role in reaching e.g. the goals of the Paris agreement, which aspires to prevent the globe from warming up to irreversible temperatures.

The energy crises in 1973 lead to governments starting to adopt a wide range of political programs to increase energy efficiency, for instance through government funded R&D projects to develop e.g. heat pumps, utilization of waste heat and new building materials. In Sweden low-interest loans where granted to help Swedish homes to become the most energy efficient in the world (Geller et al. 2006). Geller et al. (2006) argues that since the energy crisis, a clear trend of adopting different kinds of energy performance standards can be seen and that these standards have been tighten periodically over the past 30 years. This argument can be linked to Falkenbach et al. (2010) who argues that the most important international initiatives to improve energy efficiency of buildings are the Kyoto Protocol, the UN Principles of Responsible Investment and also national legislation, carbon emission waste management among other things. Falkenbach et al. (2010) points out that these legislations affect all major stakeholder groups and forces higher business costs on investors.

According to (Falkenbach et al. 2010) lately the role of environmental sustainability, has increased in the real estate sector. They argue that the main reasons of the slow adoption of sustainable principles what comes to investing in increasing energy efficiency of buildings, is due to uneven distribution of costs and benefits, between the occupier and the investor, as well as lack of evidence that increasing energy efficiency of real estate would actually result in financial benefits for the investor. In their study they review existing literature and seek to identify drivers and benefits of environmentally sustainable buildings from the real estate investors perspective.

Falkenbach et al. (2010) arguments can be linked to Lützkendorf and Lorenz (2007) research, where they find that the existing research lacks validity what comes to financial advantages of sustainable buildings. One reason for the lack of validity according to Lützkendorf and Lorenz (2007) is that there for example does not exist any property transaction database or index, that
would measure the actual outcome of investing in increasing energy efficiency of property assets and therefor making it difficult to take a stand on; if there actually exists any financial benefits. However Lützkendorf and & Lorenz (2007) also states that sustainable property assets offer a range of features that make them much more superior to the conventional assets. They state that taking sustainability issues into consideration, results in countless win-win situations for the actors in the real estate market. Win-win situations referring to that identical cash-flow scenarios or profits can be achieved with a lower environmental impact and added value for the society. Their main argument for reaching these win-win situations and identical cash flow is based on the assumption that the risk profile in sustainable investments, can be maintained at the same level as non-sustainable projects, with the constraint that only already tested technology are installed in the buildings and that the projects don’t have overly ambitious goals what comes to environmental and social impact. However Lützkendorf and & Lorenz (2007) arguments are not in line with research conducted by the consultancy company Sweco (2014) who argue that one of the main reason for not conducting energy efficiency projects, is due to the bounded rationality of managers in decision making position. Bounded rationality referring to that the decision makers do not grasp e.g. the technical aspects but only understands the financial perspective and therefor experiencing that sustainability projects risks are too high compared to the returns on investments from other projects where the content of the investment is better understood. According to Sweco (2014) one prominent driver for rejecting sustainability projects being the bounded rationality by the management in decision making positions what comes to technology resulting in rejected sustainability projects.

Pivo and & McNamara (2005) find that a shifting trend in consumer behaviour due to e.g. tougher government regulations, expanding legal liabilities and increasingly expensive resources has made the investor more aware of social and environmental issues. Pivo and & McNamara (2005) state that not adapting to e.g. tougher government regulations, increasingly expensive resources and material inputs as well as pressure from affected stakeholders are making it risky for investors to ignore these sustainability issues and can result in fatal consequences for the investment portfolios and can therefore no longer be ignored. (Pivo and & McNamara 2005, p. 129). The importance of increasing energy efficiency of buildings, puts real estate investors in the spot light what comes to making the existing building stock more energy efficient. There seems to be a quite divided opinion in the research on what is seen as drivers and if investing sustainably, actually provides any financial advantages.

Another gap in the existing literature can be found on what comes to Sweden. The existing research is not taking into consideration Sweden were there are differences in laws compared to the rest of the world what comes to energy policies and governmental subsidies. For instance Falkenbach et al. (2010) who have reviewed thirty research papers on the topic lacks environmental validity due to that, most of the papers focus on the UK and the USA. Another
example is Coulmont and & Berthelot (2015) who researched why 250 French companies want to be affiliated with the United Nation Global Compact initiative which encourages e.g. real estate investors to invest in a sustainable way. Therefor this thesis will focus on understanding drivers for investing in energy efficiency in a Swedish context.

The main goal of this thesis is to better understand what the primary decision drivers for real estate investors and why investors in Sweden make decision on investing in increasing the energy efficiency of commercial buildings. The aspiration is to provide stakeholders both on a macro and micro level with a better understanding of the real estate investors decision making process. This will enable companies (micro level) in the field to better customize their value propositions and there by hopefully be able to contribute to decreasing the primary energy consumption of buildings in Sweden, from the current 40%. Another aspect is that contributing to the research will also provide policy makers (macro level) with a better understanding on what drives sustainable investing, which facilitates for updating policies to become more attractive for real estate investors, that arguably play a significant role, what comes to decreasing the final energy consumption in Sweden. Decreasing the final energy consumption is a step towards Sweden, reaching its energy efficiency goals for 2050. Another aspiration is to dig deeper into the decision-making process due to that there doesn’t seem to exist that much research on the topic today.

Based on the arguments presented in this chapter the following research questions have been developed:

**Research questions:**

1. What are the primary decision drivers for real estate investors to invest in increasing energy efficiency of commercial buildings in Sweden?
   1.1. Why do external drivers drive real estate investors to invest in increasing energy efficiency of commercial buildings in Sweden?
   1.2. Why do corporate level drivers drive real estate investors to invest in increasing energy efficiency of commercial buildings in Sweden?
   1.3. Why do property level drivers drive real estate investors to invest in increasing energy efficiency of commercial buildings in Sweden?

2 **Theory**

This chapter consists of a literature review where first existing research on what drives real estate investors to invest in increasing energy efficiency of their buildings will be reviewed. Other literature considered important for better understanding the decision-making process has also been reviewed e.g. on corporate social responsibility, sustainable investing and environmental social government. After the theoretical overview an existing framework developed by
Falkenbach et al. (2010) has been further developed by adding findings from the theoretical overview.

2.1 Theoretical Overview

In a research conducted by Falkenbach et al. (2010) existing literature focusing on previous research, that shows actually scientific evidence on actual benefits of environmentally sustainable buildings for real estate investors is reviewed. Falkenbach et al. (2010) finds that existing research suggest, that the operating costs for certified buildings are lower compared to buildings that are not certified. Falkenbach et al. (2010) argues that there is indications that 2-17% of tenants are willing to pay higher prices for certified buildings. There are also indications of lower rental cost with increased rental levels, the sustainable buildings should be more attractive than traditional buildings from a cash flow point of view. The research gives a good indication of what the state of the research is at the moment and confirms that there is still very little research done in the field to make valid conclusions from the data. It has to be pointed out that the research is limited to the LEED and Energy Star certifications in the USA and is not therefore directly applicable to the Swedish market.

Falkenbach et al. (2010) argue that in the past decades a clear rise of licensing standards for assessing the sustainability of buildings can be seen. The largest companies being U.S. based Leadership in Energy and Environmental Design (LEED) and U.K. based Environmental Assessment Method (BREAAM). Smaller actors can also be found for instance the Swedish “Miljöbyggnad”. All these actors use different parameters as bases for certifying buildings. Apart from these companies, several other companies offering sustainability benchmarking and management services can be seen e.g. Jones Lang LaSalle and IPD Environment Code. (Falkenbach et al. 2010). Geller et al. (2006, p. 571) argues that these “soft-policies” what for instance US Energy Star does by labelling properties aren’t usually effective if not combined with financial incentives, voluntary agreements, or regulations. Falkenbach et al. (2010) also recognizes financial and taxation incentives, as well as the customer strategic decisions as central drivers for real estate investors decision making.

Falkenbach et al. (2010) recognizes different reporting protocols as another driver which are either internal or external standards of reporting that investors can use for communicating what kind of work has been carried out. del Mar Alonso-Almeida et al. (2014) argues that companies adopt reporting standards like the Global Reporting Initiative (GRI), do it to increase their transparency towards the company stakeholders e.g. investors, analysts and owners. A standardized reporting standard enables all these stakeholders to make more informed decisions what comes e.g. purchasing and investing. del Mar Alonso-Almeida et al. (2014) points out that firms are engaged in GRI reporting even though the company is not necessary able to impact the environment in any particular way and there for del Mar Alonso-Almeida et al. (2014) finds that
the main reason for e.g. financial service companies is only to boost their marketability of their stocks.

del Mar Alonso-Almeida et al. (2014) states that especially the finance and energy sector an increased trend of sustainable reporting can be seen. This is mainly that both of the industry’s image has suffered due to recent economic crisis affecting the financial industry and that the energy sector has traditionally been associated with pollution. (del Mar Alonso-Almeida et al. 2014)

Falkenbach et al. (2010) identify in their literature review image benefits as the only driver on corporate level for investing in energy efficiency. They found that increasing corporate image was experienced as the most important thing by real estate investors when making decision related to energy efficiency. They argue that real estate investors leverage publishing various sustainability reports to gain good publicity for the company.

Coulmont and Berthelot (2015) research can be linked to the support of investors. They researched if investors see a positive value in firm's affiliation with the United Nations Global Compact (UNGC). The research was conducted by studying 250 publicly listed large companies in France. Their literature review suggests that drivers for participating in the UNGC is to demonstrate good citizenship but more importantly to improve the company's image and thereby distinguish the firm from other firms not participating in the program. The study confirms that a positive value, from the investors point of view can be found. However, the limitations of the study must be kept in mind due to that the study was aimed only at large French companies and there is no proof that this set-up applies to other countries and/or smaller companies. Despite the limitations of the study, it could be argued that it seems to be attractive for real-estate investors to take part in the program due to that it becomes easier to get access to external capital by showing a greener company profile.

When further reviewing the existing literature other drivers that could be classified as corporate level drivers can be found. One example of this is the company internal investment horizon. Högberg (2011, p. 6) divides real-estate companies into three different categories based on their level of ambition what comes to energy improvement strategies. The least ambitious companies are driven mainly by regulatory and economic motives and carry out only energy efficiency improvements that are profitable from a short-term perspective. The medium ambitious company carries out what Högberg (2011) refers to as “a little extra”, and is partly driven by a sense of responsibility for the Environment. The medium ambitious company seeks good publicity and calculates a profitability on a little bit longer perspective. The most ambitious companies are mainly driven by direct political directives but also take into consideration long term economical aspects. Högberg (2011) argues that less ambitious companies do less forward
planning and emphasize much more transaction costs, competing investments and financing problems, compared with more ambitious companies.

Similar arguments can be found in research conducted by Cajias et al. (2014) who argues that companies can be divided into three types of profile what comes to level of commitment to environmental social responsibility (ESR). The caring profile, the competitive profile and the concerned profile. The caring profile, it is the organizations leadership that is the key driver of commitment to ESG. In the competitive profile the company is motivated by business advantages like savings in energy costs as a result of working in a sustainable way. Finally in the concerned profile is mainly driven by a group of actors that want to introduce improvements in ESG performance to obtain regulatory and reputational benefits. (Cajias et al. 2014)

Luo and & Bhattacharya (2006) conducted a comprehensive analysis of secondary data sets on how the relationship between investing in Corporate Social Responsibility (CSR) affect the market value of a company. They found that customers satisfaction plays a significant role in the relationship between the firm’s market value and CSR. They suggest that taking CSR affects customers satisfaction, and customer satisfaction directly affects the market value. However, Luo and & Bhattacharya (2006) points out that it is not as black and white, that if a company invests in CSR, it won’t automatically lead to increased market value. They argue that there is different constraint e.g. the company’s characteristics. They also argue that more innovative companies are more likely to enjoy increased market value, compared with less innovative companies. This is due to that less innovative companies might end up in a situation, where they are signalling incorrect strategic choices and miss-use of firm priorities to the stakeholders, which leads to a lower customer satisfaction and there for a decreased the market value. They found that investing in CSR, can lead to a competitive advantage as well as financial benefits. They see that companies can use CSR investments to reinforce their public relations strategy, especial what comes to stakeholders like customers and employees that may have strong opinions about social concerns. (Luo and & Bhattacharya 2006). It has to be kept in mind that the article by Luo and & Bhattacharya (2006) refers to CSR more as corporates distributing money e.g. for building schools or supporting communities. It could however be argued that this article is very relevant to this thesis, not just because the extensive amount citations that it has received but because how much the concept of CSR has evolved since 2006 when the article was written. It could be argued that sustainability is a concept that could not be left out when discussing CSR in today’s society. Therefor the discoveries made by Luo and & Bhattacharya (2006) will be understood in this thesis as being of great value in the format of image benefits for real estate investors when making decisions about investing in improvements of building energy efficiency.

Coulmont and & Berthelot (2015) review in their study what kind of financial benefits can be expected from being affiliated with e.g. UNGC and other similar environmental initiatives. The outcome of the review is very divided. In one case where publicly, listed company on the
Stockholm Stock Exchange is reviewed they find that the company's performance is negatively affected by environmental performances. They believe that the result for this is that investors see environmental performance just as window dressing of book values and financial performance, they also argue that these activities are carried out at the cost of increased profits without any corresponding reduction risk and lastly, they see that the markets are short-term oriented which conflicts with the long-term environmental approach when making investing decisions which is in line with the points earlier discussed by Högberg (2011). On the other than they find from other studies that markets are more positive towards companies that are affiliated with UNGC. (Coulmont and Berthelot 2015, pp. 147–148)

Mills et al. (2006) argues that another aspect is that there is a fundamental difference in how the technical experts on energy efficiency understand risk compared with the investors. The technical experts understand risk as something technical that needs to be solved with a technical solution. Investors on the other hand see risk as a set of tools for comparing investments on the basis of risk, value and volatility. Mills et al. (2006) argues that it is essential to carry out quantitative risk analyses so that the value of energy-efficiency projects better can be analyses in the context of investment decision-making. Mills et al. (2006) sees that tools to manage these risks already exist in the financial community and that these tools easily could be applied to energy-efficiency projects this referee to tool e.g. calculating an internal rate of return. (Mills et al. 2006, p. 188)

In a research report about different barriers for investing in energy efficiency produced by the consulting company Sweco (2014), it was found that the interviewed investors for the report did not experience any financial boundaries. The report states that investors almost always could access internal and external capital as long as the project could be backed up with feasibility calculations proving the project to be profitable. The times that money was not granted the most common reasons where due to that the organization in question had chosen to prioritize something else or that the person in charge of the decision had a bounded rationality of what energy efficiency means. (Sweco 2014)

On the other hand Pivo and McNamara (2005) argue that it can't be proven that investing responsibly would actually enhance investment returns. They argue that if it could be proven that it would be profitable everybody would be doing it and therefore investing responsible is associated with higher costs with no immediate increase in asset values which results in a slow diffusion of responsible investing. (Pivo and McNamara 2005, pp. 133–134)

Cajias et al. (2014) suggest a Milton Friedman inspired approach on how to review the corporate financial performance in relation to ESG activities. Figure 1 suggests that the direct costs are the costs associated with the monitoring, reporting and implementation of an ESG strategy. The indirect costs are opportunity costs from not investing the money in other potentially more
profitable projects that might have conflicted with the ESG related objectives. Factors usually associated with trust such as reduced information asymmetry and increased transparency may result in positive reputational and branding benefits that can lead to improved key relationships with shareholders, customers, suppliers, employees and the community and financial performance is understood as the relation between the costs and the benefits. (Cajias et al. 2014)

The model suggested by suggested by Cajias et al. (2014) can be linked to Swecos (2014) research on what effects diffusion of energy efficiency, where they found that real estate investors consider implementing new technology in buildings as a great risk. This is triggered by several factors. One factor is that the organization purchasing the technology is usually lacking knowledge about the technical aspects or what Cajias et al. (2014) refers to as information asymmetries. This results in that the energy efficiency projects are given higher interest rate when calculating the net present value of a project, due to the higher risk, which results in that the projects do not look as attractive as other projects that are better understood by the investor. The report by Sweco (2014) states that: to be successful in increasing energy efficiency, it is crucial that the management is committed to tackle the energy consumption of the company. Other aspects that the report mentions are increased transaction cost in executed projects, that have been caused by choosing the wrong technology and/or the wrong supplier. These kinds of experiences traumatize the organization and decreases the willingness to invest in similar
projects in the future. Another aspect is the bounded rationality, where for instance a person responsible for energy related tasks, lacks knowledge and interest in the topic and therefore prioritizes other types of projects instead, which the person in charge understands better, these arguments could be linked to what Cajias et al. (2014) referes in their model to as “rejected profit opportunities”.

In their extensive study on environmental decision drivers for real estate investors Falkenbach et al. (2010) identifies four main property level drivers. The first one is *Increased Rental Levels*, which can be caused by e.g. ability to increase rents on energy certified buildings. The second driver is *decreased property cost*, which is caused by lower operating costs. The third driver is *decreased risks*, an example of this is e.g. protection towards increased penalties for greenhouse gas emissions and energy consumption. The fourth and final driver is *increased property values* which is caused by decreased operating costs and risk exert influence on property value.

All of the property level drivers found by Falkenbach et al. (2010) seem very relevant, but their research concludes in that there is very little consensus on if these drivers are actually effecting real estate investors decisions on investing in energy efficiency to gain these advantages. Falkenbach et al. (2010) states that the field is still lacking a lot of research.

Pivo and & McNamara (2005) research is in line with Falkenbach et al. (2010) research and they also found that that decreases operating costs and improves net operating income and raises valuation which results in higher returns from both appreciation and operations. Lützkendorf and & Lorenz (2007) states that ownership of an energy efficient building results in various direct and indirect financial benefits for investors and other stakeholder e.g. significantly lower operating costs that improve marketability, more stable cash flows, longer useful life spans and significantly increased occupant well-being and productivity.

### 2.2 Theoretical Framework

Reviewing the existing literature on decision drivers for real estate investors a pattern can be found where different drivers influence decisions on different levels. Falkenbach et al. (2010) has managed to divide these drivers into three levels in a very elegant way, consisting of: external drivers, corporate level drivers and property level drivers (see Figure 2).
External drivers refers to “forces” from outside the company driving the decision making related to increasing energy efficiency of buildings. Falkenbach et al. (2010) recognizes governmental incentives, finance incentives, customer’s strategic decisions, environmental and energy certifications and national standards as external drivers. Other research reviewed (Coulmont and & Berthelot 2015; del Mar Alonso-Almeida et al. 2014) on external drivers seem to be in line with Falkenbach et al. (2010) findings.

Corporate level drivers refers to forces driving the decision making from inside the company. Falkenbach et al. (2010) identified image benefits as the only corporate level driver. However as earlier discussed the corporate investment horizon (Högberg 2011), ambition levels (Cajias et al. 2014) as well as internal investment policies like risk tolerance and the bounded rationality of managers in influence positions (Sweco 2014) could be added as corporate level drivers.

Property level drivers refer to what drives the decisions based on the specific property. Falkenbach et al. (2010) identifies decreasing costs and risks as a prominent drivers which results in increased property value as the prominent property level drivers. Other research reviewed on property level drivers seems to be in line with Falkenbach et al. (2010) findings.

Very much similarities in the existing literature on what drives real estate investors to invest in increasing energy efficiency of their buildings can be found. For instance, there seems to be a consensus that returns on investments and image benefits play a prominent role when making decisions about investing in energy efficiency. Falkenbach et al. (2010) has made the most ambitious attempt of understanding real estate investors by reviewing thirty existing research papers. However, when researching further the existing literature it can be found that there are other aspects that Falkenbach et al. (2010) have not taken into consideration in their framework.
(see Figure 2), for instance Högbergs (2011) argument of company ambition level is not considered a corporate level driver in Falkenbach et al. (2010) research which arguably plays an important role what comes return on investment expectations. Therefor this thesis wants gain a better understanding of the different level drivers suggested by developing further Falkenbach et al. (2010) framework (see Figure 3) in a Swedish context.

**Figure 3: Framework summary**

3  **Method**

The following chapter describes what method has been chosen to be able to answer the research questions. The study uses a deductive research strategy. The method of choice is a mixed method that combines both a quantitative method in the format of a survey and a qualitative method in the format of semi-structured interviews. This section also explains how secondary data has been collected as well as how the survey and semi structured interviews have been conducted.

3.1  **Research Design**

The purpose of this thesis is to answer the main research question and the three sub research questions. To be able to answer the research questions this thesis has been conducted using a deductive research strategy, where theory first was reviewed and after that empirical data was collected about drivers found in the theory (Bryman and & Bell 2011).
The thesis was carried out in four stages (see Figure 4). First theory was reviewed to gain an extensive understanding of the existing literature on the topic. In the second phase empirical data on drivers, specific to the Swedish market was reviewed. Based on phase one and two a survey was drafted to gain an understanding if the theory and the empirical data gathered are in line with, what the Swedish real estate investors understand as decision drivers. In phase four, the results gained from the survey was used as basis for semi structured interviews to gain a deeper understanding of the results obtained from the survey. In the final stage the results from the survey and the interviews were analysed and compared to what could be found in the existing literature.

![Figure 4: Research stages](image)

The method of choice has developed a lot during the study. The reasons why there has been such big changes is due a few factors. The first one is that the research questions have been developed throughout the study as a result of gaining a better understanding of the topic and thereby also the method has changed. Bryman and & Bell (2011) argue that the research questions should lead the method of choice. The same point is made by Johnson and Onwuegbuzie (2004) who argue that the most fundamental thing is that the research method follows the research questions in a way that offers the best chance of finding the most useful answer.

Another aspect is that the initial plan was to carry out a quantitative study that would only consist of a survey. After the survey was sent out and all responses had been gathered, it could be concluded that the survey could only answer the first research question on “What are the drivers on the Swedish market” but did not provide any answers on the sub-questions on “Why are these investors affected by the drivers”. Therefor it was decided to complement the survey result, with semi-structured interviews to gain a better understanding on “why” the investors are affected.
Not being able to answer the “why” questions can be linked to Bryman and Bell (2011), who state that choosing a very open-ended question is more suitable for a qualitative method whereas more specific questions are more suitable for a quantitative method. In this thesis there are one “what” questions that arguably is more specific than the “why” questions that are more open ended.

Quantitative studies are considered to be a good method for testing theory’s (Bryman and Bell 2011). This is due to the quantitative methods epistemological orientation approaches the research question from a positivism point of view (Bryman and Bell 2011). This enables the researcher to get a very objective view on the problem. The downside with quantitative methods are that it leaves the research with very little, or if with any, space for interpretivism, whereas the qualitative methods are better for interpreting the results. Therefore the quantitative result in this research is not suitable to answer the “why” questions but is more suitable to answer the “what” question. The quantitative method was therefore used to measure what the Swedish market considered to be decision drivers and used the existing literature as a hypothesis. The qualitative method was then used to interpret the results obtained from the survey. Bryman and Bell (2011) argue that were the quantitative method emphasises quantifying data, the qualitative method emphasises words. For this study the survey provides a way to quantify which are considered to be the drivers on the Swedish market and the qualitative method enables to translate these quantification into words so that the reason behind the decisions can better be understood.

Mixing both quantitative and qualitative methods is something that Bryman and Bell (2011) refers to as mixed method. On the one hand Bryman and Bell (2011) are very critical towards using mixed methods. They argue that the main concerns when using mixed methods are related to epistemological and ontological commitments. Bryman and Bell (2011) main argument is that: qualitative and quantitative methods, use different epistemological positionings and should therefore not be studied together. For this study, as discussed earlier in this chapter taking the different epistemological approaches into consideration is very important due to that the research questions consist of both specific and open-ended questions. Johnson and Onwuegbuzie (2004) found that mixed methods also have shortcomings. They state that it can be very difficult for a single researcher to carry out both methods and that mixing methods is very time consuming. Which could be confirmed from the study. The budgeted hours for e.g. preparing the survey ended up taking double the time that was budgeted for the task.

On the other hand Bryman and Bell (2011) find that using mixed methods facilitates for filling a gap, when research cannot rely on either a quantitative or qualitative method alone. They also argue that using only a quantitative approach can result in a very “static” results. Whereas quantitative research provides “dynamic” results. Combining these two methods facilitates for capturing both views, facilitating for a much more processual analysis. Arguably it could be
viewed as: that the quantitative result is broth to life, by viewing it through the results of the qualitative insights. To be more specific in this case the formulation of the research questions with “what” and “why” questions.

Johnson and Onwuegbuzie (2004) argues that the upside using mixed methods is that it provides the research with a broader and more complete range of research questions due to the fact that the researcher is not limited by a single approach or method. Johnson and Onwuegbuzie (2004) also state that the mixed method helps the researcher overcome the weaknesses of one single method by using several methods. In this case answering the “why” question would be very difficult due to the constraints of the survey that is more applicable to the first research question. Johnson and Onwuegbuzie (2004) state that if only a single method would be used important insight easily can be missed.

The study was carried out in what Johnson and Onwuegbuzie (2004) refers to as a certain time order, where the researcher is free to in a creative way, decide what is the most appropriate order to carry out the different methods in, to be able to answer the research question in the best possible way. The order is demonstrated in Figure 5.

First a test survey was drafted. The test survey was tested by interviewing two real estate investors. The investors where asked mainly questions on if the survey was easy to understand. Based on the interviews the survey was modified before it was sent out. Based on the results from the survey semi-structured interviews were conducted.

### 3.2 Data Collection

#### 3.2.1 Secondary Data

In order to formulate a survey that would answer the main research question, secondary data was collected from the Swedish market. The existing literature reviewed for the thesis mainly covered other markets than Sweden and therefore equivalent drivers on the Swedish market needed to be identified. Data was mainly collected on what is considered to be external decision drivers for real estate investors in Sweden. Some corporate level and property level empirical data was also included.
From the collected data good insights was gained on what could be considered as prominent drivers on the Swedish market. Another argument for collecting empirical data was to better give the reader some context and to open-up different concepts broth up in the interviews.

The framework (see Figure 3) was used as a basis together with AP-Fondernas investment policies to collected empirical data. The empirical data was collected mainly from data primary data sources e.g.:

- The Swedish energy agency
- Swedish pension funds AP-Fonderna
- The Swedish tax authority
- United Nations
- The European Union
- Banks (e.g. Nordea)
- Real estate investment company’s annual reports

Some secondary sources have also been used to better understand data collected from the primary data sources, these are mainly research papers and data collected by interest organisations as the Swedish Building Council.

The investment policies of e.g. the Swedish pension funds AP-Fonderna investing public money was used as a benchmark in this thesis for identifying the drivers on the Swedish market. The assumption made is that these funds managing public money are the actors on the market have the strictest requirements on investing in a sustainably way, due to that institutional investors are investing public money and the investments need to be in line with the Swedish national climate goals, as well all the global conventions that the EU is taking part of. However, it is important to point out that this thesis is limited to real estate investors that are not restricted by public procurement laws and that the companies investing public money are only looked at as a benchmark to identify drivers on the market so that empirical material can be gathered from the Swedish market.

3.2.2 Survey

3.2.2.1 Constructing the Survey
To be able to answer the first research question a on what drives real estate investors to invest in increasing energy efficiency of their buildings a survey was conducted. Bryman and & Bell (2011) state that the main problem with conducting a survey is that it is very easy to miss data and therefore it is common to complement self-completion surveys with interviews. Another problem is that the interviewer is not present when the survey is filled in and therefore the person answering the questionnaire is not able to answer possible questions about the survey.
There is also an upside with the interviewer not being present because this way the interviewer is not biasing the outcome of the survey. Using a survey also enables the researcher to reach out to a bigger population that otherwise would be very time consuming which was considered to be an important element when collecting data for the first research question.

The survey for this study consisted of 10 questions. Bryman and & Bell (2011) state that having fewer questions increases the chance of getting a higher response rate. Too many questions can easily bore the respondent and thereby increase the risk of the respondent not completing the survey. Other factors affecting the response rates according to Bryman and & Bell (2011) is to keep the structure simple and not have too many open ended questions. The questions for the survey were simplified as much as possible which arguably increased the risk of missing out on important data. The questionnaire contained only one open ended question, all other questions had answering alternatives.

The survey was constructed by first reviewing relevant literature discussed in the theoretical background and after that relevant empirical data from the Swedish market was gathered e.g. on Swedish climate goals, the most used energy certifications standards in Sweden and financial subsidies available on the Swedish market.

First a pilot survey was sent to two real estate investors to be filled in, one with technical responsibility and another with responsibility over an investment portfolio. After the survey was tested, a one-hour interview was conducted with the person with less knowledge about technical aspects to get feedback on all questions. The aim with the interview was to gain an understanding if the survey was easy to understand, if the questions where making sense and if the survey was missing something very relevant. A shorter interview was conducted with the person with technical knowledge due to that the person grasped the concepts much better than the person without technical knowledge.

Based on the interviews the survey was updated and small changes were made to eight out of ten questions and one question was removed due to that the question was formulated in a poor way. One question was added on how much the specific building itself affects investment decisions making, this driver could not be found in the reviewed literature, but both of the persons interviewed for the pilot survey stressed the point that the building itself plays a crucial role. Otherwise all the questions where based on the gathered theoretical and empirical data.

### 3.2.2.2 Survey Questions

The survey questions where formulated so that they would bring insight on all of the different level drivers with the aspiration of gaining data to answer the first research question. The questions, answer alternatives and driver levels are described in Table 1.
<table>
<thead>
<tr>
<th>#</th>
<th>Question</th>
<th>Question alternatives</th>
<th>Driver level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is the value of direct and indirect real estate assets managed and/or owned by your company?</td>
<td>&lt; 100 million €</td>
<td>Corporate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 - 499.9 million €</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>500 - 999.9 million €</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - 4.9 billion €</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 - 10 billion €</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 10 billion €</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>What is your approximate holding period for a typical real estate investment?</td>
<td>0-5 years</td>
<td>Corporate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6-10 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>11-20 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;20 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Which of the following initiatives drive you to invest in improving energy efficiency of a building?</td>
<td>United Nations Global Compact</td>
<td>External</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy certificates (LEED, BREEAM etc.)</td>
<td>External</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reporting protocols (e.g. GRI)</td>
<td>External</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Financial subsidies (e.g. from the state)</td>
<td>External</td>
</tr>
<tr>
<td></td>
<td></td>
<td>None of the above</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>How much do the following seven parameters affect investment decisions in energy efficiency?</td>
<td>Improvement of company image</td>
<td>Corporate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increase in property value</td>
<td>Property</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Company internal investment criteria e.g. required IRR, NPV, risk level etc.</td>
<td>Corporate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decreased property energy cost levels</td>
<td>Property</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Payback time of the investment</td>
<td>Corporate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Corporate social responsibility</td>
<td>Corporate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Life cycle savings of the investment</td>
<td>Property</td>
</tr>
<tr>
<td>5</td>
<td>Are investments in energy efficiency driven by gaining easier access to capital?</td>
<td>Rating 1-5 (1 low, 5 high)</td>
<td>External/Corporate</td>
</tr>
<tr>
<td>6</td>
<td>How much is building certification driven by increasing transparency, with reference to energy efficiency (e.g. with LEED and BREEAM)?</td>
<td>Rating 1-5 (1 low, 5 high)</td>
<td>External</td>
</tr>
<tr>
<td>7</td>
<td>How much does the specific building itself drive the energy efficiency investment decision?</td>
<td>Rating 1-5 (1 low, 5 high)</td>
<td>Property</td>
</tr>
<tr>
<td>8</td>
<td>In how many cases are energy efficiency projects conducted on the request of a tenant?</td>
<td>0%</td>
<td>External</td>
</tr>
</tbody>
</table>
1-25%
26-50%
51-75%
76-100%
Other

9   **Arrange the following parameters from most important decision driver to least important decision driver, when investing in energy efficiency.**

Maximize return on investment  All levels
Improve corporate image
Pressure from investors and other stakeholders
Pressure from tenants

10 **Other comments**  All levels

<table>
<thead>
<tr>
<th>Question</th>
<th>Survey Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 1 and 2</td>
<td>Added so that respondents could be categorized. Later question number one and two were used as a benchmark helping to select candidates for the interviews.</td>
</tr>
<tr>
<td>Questions 3 and 4</td>
<td>Scales for questions 3 and 4 were selected based on the literature. These answering options were identified as prominent drivers in the literature and were selected to test to see what the respondents on the Swedish market experienced these as drivers.</td>
</tr>
<tr>
<td>Questions 5-7</td>
<td>Questions 5-7 were also identified as prominent drivers in the literature. The questions were quite simple and therefore a 1-5 scale seemed logical. The initial idea was to choose a scale 1-4 but due to the limitations of the online questionnaire used this was not possible. A scale 1-4 would have pushed the respondent to take a clearer stand of if these drivers were considered as prominent drivers.</td>
</tr>
<tr>
<td>Question 8</td>
<td>The scale was chosen to get an indication on the effect on how much the customer strategic decision drives decisions. For this question another type of scale would have been preferable, were the range of alternatives would be smaller than 25% but it would have given the form layout a more complicated look and arguably decreased the answering rate.</td>
</tr>
<tr>
<td>Question 9</td>
<td>Answering options were selected based on that the respondent had to take a stand on what the most prominent driver are. Question 10 was an open-ended question that respondents could add their own comments too.</td>
</tr>
</tbody>
</table>

### 3.2.2.3 Survey Distribution

A very thorough screening of candidates where conducted to reassure that the persons answering the survey would provide a response of high validity. The candidates where selected by strict criteria’s and most of the respondents were working in positions like CEO, CFO, sustainability director, head of asset management and environmental and energy director. The point of selecting the candidates so thoroughly was stressed a lot, since getting access to these
people in general turned out to be very hard which can be linked back to Bryman and & Bell (2011) that surveys are a good way to reach out to a larger population in a shorter time.

The list of candidates where reviewed by three persons, two of whom had a very extensive understanding of what persons where in charge of which things at different companies. The list of candidates was then narrowed down from an original list of about 500 persons to 129 handpicked persons. The type of company and job title were main criteria for selection.

The survey was sent to 129 persons of which 13 email addresses did not work. The survey received an answering rate of 18%. According to Bryman and & Bell (2011) 18% is a low response rate. It can however be argued that the response rate is a very subjective interpretation. In this case for instance the selected population for answering the survey was very carefully selected. This argument could be confirmed in the result that generaly was very consistent. However, to reassure that the remaining research questions could be answered a decision was made to increase the number of interviews to get a better understanding of the results.

3.2.3 Semi-Structured Interviews

After the material from the survey was analysed semi-structured interviews were conducted. As discussed in earlier in this chapter a qualitative method should be used when answering questions that are more open ended. For this study the main goal with the semi structured interviews were to gain a better understanding of how the different drivers identified in the questionnaire effect investment decisions. The aim with the interviews were to answer the “why” formulated questions that arguably could be considered as more open ended than the “What” question.

A semi-structured interview is a interview where the researcher has a list of questions that are fairly specific to the topic covered (Bryman and & Bell 2011). The interviewer picks up on things that the interviewee says and adapts e.g. time spent according to the candidate.

In this study the survey functioned as the list of questions that were asked from the interviewees. The aspiration was to gain a better understanding off the survey’s results and be able to answer the two sub research questions better. The candidates where asked in a chronical order about every question on the survey. Depending on the person and the company different amounts of time was spent on different questions.

The aspiration when selecting candidates was to find people equivalent to the persons who had participated in the survey. The process of finding candidates started with reviewing Fastighets Världen (2016) list on Sweden’s 50 largest real estate owners. Companies with other main focuses than commercial real estate were excluded from the list. The aspiration was to select similar candidates for the interviews in the same ratios as the respondents for the survey to gain better understanding of the survey. Companies with headquarters in Stockholm were priorities
due to that in-person interviews were preferred. After the selection process the company’s sustainability, energy, technical or similar directors were contacted and asked for an interview.

Six persons agreed to an interview, these company and person profiles can be found in Table 2. To protect the anonymity of the candidates the company’s portfolio size has on purpose been left out. Some of the interviewees could directly be identified based on the type of money invested, portfolio size and title.

<table>
<thead>
<tr>
<th>Title</th>
<th>Pension money</th>
<th>Private equity</th>
<th>Investment horizon</th>
<th>Types of buildings</th>
<th>Investment location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annica (Sustainability Director)</td>
<td>X</td>
<td></td>
<td>&gt;20 years</td>
<td>Commercial</td>
<td>Biggest cities in Sweden</td>
</tr>
<tr>
<td>Kevin (Sustainability Director)</td>
<td></td>
<td>X</td>
<td>&gt;20 years</td>
<td>Commercial</td>
<td>Biggest cities in Sweden</td>
</tr>
<tr>
<td>Lucas (Technical Director)</td>
<td>X</td>
<td></td>
<td>&gt;20 years</td>
<td>Commercial/Residential</td>
<td>Biggest cities in Sweden</td>
</tr>
<tr>
<td>Mike (Technology and Sustainability Officer)</td>
<td>X</td>
<td>X</td>
<td>5-10 years</td>
<td>Commercial</td>
<td>Around Sweden</td>
</tr>
<tr>
<td>Sonja (Property Manager)</td>
<td>X</td>
<td></td>
<td>&gt;20 years</td>
<td>Commercial</td>
<td>Biggest cities in Sweden</td>
</tr>
<tr>
<td>Uma (Sustainability and Energy Director)</td>
<td>X</td>
<td></td>
<td>11-20 years</td>
<td>Commercial/Residential</td>
<td>Around Sweden</td>
</tr>
</tbody>
</table>

Table 2: Comparison of interviewees

3.3 Ethical Consideration

The ethical consideration of this thesis was conducted by answering the following four questions suggested by Bryman and & Bell (2011, p. 128) on how to approach ethical dilemmas:

1. Whether there is harm to participants.
2. Whether there is a lack of informed consent.
3. Whether there is an invasion of privacy.
4. Whether deception is involved.

All persons participating in the in the survey have answered the survey anonymously so no risk that there would be any harm to the participant exists. All the six persons who participated in the interviews where informed in the beginning of the interview that the interview is anonymous and no name of either the person or the company that they work for will be mention in the thesis. All names included in the thesis have been changed. Due to that there are not many big actors on the Swedish real estate market a very short description of each company has been given to minimize the risk that the companies in question could be recognized. Protecting the identity of the participants links in with question number three about invasion of privacy. The assumption
made is that: if the identity of the participant can’t be identified then there is no invasion of privacy.

What comes to informed consent, all persons interviewed have been informed that they are taking part in an interview, that will be published in the format of a thesis. No one of the participants have had a chance to comment the material before the publication. However, all persons taking part in the interview have been promised a copy of the thesis after publication.

No signs of deception can be found. All material is based on either data collected from research, secondary data sources, a survey or interviews. The data accessed from secondary sources have been selected carefully to avoid unreliable sources.

What comes to the interviews a lot of emphasis has been put on describe as accurately as possible what the person has said in their own words without falsifying the words or points made by the interview person.

4 Empirics

The following chapter first describes what results were obtained from the survey. Each of the 10 questions in the survey are explain. After that findings from the interviews are described with the help of secondary data. The interviews are divided according to the framework demonstrated in Figure 3.

4.1 Survey

The first question was more of an informative question to get an understanding of how much real estate assets managed and / or owned by the company that the person answering was working for. This question was used to target real estate investors in the interviewing part that would represent the different groups of investors.

Most of the respondents managed portfolios varying between 1 - 4,9 billion euros. There was an even distribution between respondents managing <100 million €, 500-999.99 million€, 5-10 billion €. Then four respondents managing portfolios bigger than 10 billion €.
1. What is the value of direct and indirect real estate assets managed and/or owned by your company?

![Chart]

The approximate holding period for the respondent’s real estate investment, clearly investors with longer investment horizons where majority with investments. Out of the respondents 62% had long investment horizon equivalent to holding periods over 10 years. The next biggest group was investors with medium long investment horizons which in this case refers to a investment period of 6-10 years. No one of the respondents represented short term investors with investments of 0-5 years. The survey also received a few “other” responses which in this case referred investments that did not have and exit plan for their investments.

2. What is your approximate holding period for a typical real estate investment?

![Pie Chart]

Question number three aimed to measure how the drivers identified in the theory and empirics are considered by investors in Sweden. Out of the respondents 62% felt that energy certificates are driving their decisions to invest in improving energy efficiency of their buildings.

The UNGC, financial subsidies, reporting protocols also received between 24% -28% answers indicating that these are driving decisions towards investing in energy efficiency.
Out of the respondents 10% found that none of the suggested initiatives drove their decision to invest in improving energy efficiency of their buildings.

This question received 7 “other “answers indicating that some important driver would have been excluded from the survey. Other answers included drivers like ISO 14001, saving money, show activity towards the tenants. The investors with a investment period of longer than 20 year 25% added a comment that decreasing costs is the most important driver.

3. Which of the following initiatives drive you to invest in improving energy efficiency of a building?

![Bar chart showing the distribution of responses]

The fourth question aspired to identify which parameters affected the real estate investor when making decisions. All of the chosen parameters seem to play a role, whereas decreasing property energy costs has the highest effect on the decisions. Majority of the respondents consider all other parameters also to play a medium or high effect when making decisions, except company internal investment criteria’s that seem to be of less importance. It is important to point out that no respondent has considered that none of these parameters would be of “no effect”

4. How much do the following seven parameters affect investment decisions in energy efficiency?

![Bar chart showing the distribution of effects]

![Bar chart showing the distribution of effects]
The fifth question rated at 2,05 out of 5. Indicating that respondents did not consider that investing in energy efficiency of buildings would give easier access to capital.

5. Are investments in energy efficiency driven by gaining easier access to capital?
Responses 20
Average rating 2,05/5,00

The sixth questions aspired to understand better how different building certifications. The question got a rating of 2,86 out 5 indicating that increasing transparency was not the main driver for investors on the Swedish market to energy certify buildings.

6. How much is building certification driven by increasing transparency, with reference to energy efficiency (e.g. with LEED and BREEAM)?
Responses 21
Average rating 2,86/5,00

The seventh questions were aimed to get a better understanding of how the specific building itself affected the decision making. The question got a rating of 4,35 out of 5, indicating that the building itself plays a very important role when making decision about energy efficiency.

7. How much does the specific building itself drive the energy efficiency investment decision?
Responses 20
Average rating 4,35/5,00

Question 8 aimed to measure how much the investors are affected by their tenant’s requirements. Out of the respondents 62% answered that in 1-25% of cases the projects are carried out on the requests of tenants. Whereas 24% of the respondents stated that 14% stated that energy projects where initiated 51-75% of the times by tenants. No one of the tenants found that the tenants would initiate projects 76-100% of the times.

8. In how many cases are energy efficiency projects conducted on the request of a tenant?

![Graph showing percentage of cases where energy efficiency projects are conducted on request](image)
In question 9 the aim was to get an understanding of what the primary drivers are. Out of the respondents 88% answered that maximizing the returned on the investment was the most relevant driver and 57% answered that the second most important driver was improvement of company image. 13% of the respondents found that improving the company image was the most important driver.

<table>
<thead>
<tr>
<th></th>
<th>1st choice</th>
<th>2nd choice</th>
<th>3rd choice</th>
<th>4th choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximise return on investment</td>
<td>88%</td>
<td>6%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>Improve corporate image</td>
<td>13%</td>
<td>56%</td>
<td>19%</td>
<td>13%</td>
</tr>
<tr>
<td>Pressure from investors and owners</td>
<td>0%</td>
<td>38%</td>
<td>19%</td>
<td>44%</td>
</tr>
<tr>
<td>Pressure from tenants</td>
<td>0%</td>
<td>0%</td>
<td>56%</td>
<td>44%</td>
</tr>
</tbody>
</table>

The respondents were also able to leave other comments but nothing relevant for the thesis was found in the comments.

4.2 Interviews and Secondary Data

4.2.1 External Drivers

4.2.1.1 United Nations

The UN encourages investors to invest responsible through their sustainability goals. Companies are able to take part of these goals by committing to the UN Global Compact.

In 2012 during the United Nations Conference on Sustainable Development a set of universal goals where develop and named Sustainable Development Goals (SDGs). The Goals could be seen, as an upgraded version of the UNs Millennium Development Goals (MDGs) which were launched in 2000. The aim with the new goals is to meet the urgent environmental, economic and political challenges facing our world (United Nations 2016a).

The SDGs consists of 17 Goals (see Figure 6) aspires to end poverty, protect the planet and ensure that all people can live in peace and prosperity. The goals came into effect in 2016 and will be valid fifteen years forward (United Nations 2016c).

The following goals are the most relevant for this thesis due to that the primary focused on the environment and sustainability:

- Goal 3: Good Health and Well-Being
- Goal 7: Affordable and Clean Energy
- Goal 8: Decent Work and Economic Growth
- Goal 9: Industry Innovation and Infrastructure
- Goal 10: Sustainable Cities and Communities
- Goal 12: Responsible Consumption and Production,
- Goal 13: Climate Action

To increase commitment to SDGs and other similar programs from governments, businesses and other stakeholder’s, different voluntary programs have been put in to place. One program is the United Nations Global Compact (UNGC) which was started in year 2000 and is today the largest voluntary corporate responsibility initiative (Coulmont and & Berthelot 2015, p. 144). UNGC functions as a platform for the development, implementation and disclosure of sustainable and responsible corporate practices and policies. Today UNGC makes a significant contribution by encouraging, especially actors in the private sector to take correct and sustainable solutions. In 2015 there were more than 10,000 corporate participants and stakeholders, including 7000 business functioning in 130 countries. The UN (UN Global Compact 2017) states that the UNGC has a unique constellation of stakeholders and participants which brings companies together with corporations, civil society, government, the UN, and other key organizations.

To take part in the UNGC all members are required to annually communicate on what progress has been achieved. The reporting is carried out performing a so called communication on progress (COP) report (Coulmont and & Berthelot 2015), which for publicly listed companies usually can be found in the annual report. The COP report must contain at least the following three parts:
1. A statement from the chief executive expressing support for the UNGC.
2. Information of practical actions taken by the company to implement the UNGC principles for each issue area.

Firms are also required to issue public disclosure to stakeholders on how the firm has progressed with implementing the 10 principles of the Compact and UNs broader development goals. If the firm fails to meet these criteria the firms status will be changed from participant status to non-communicating status, which later can lead to exclusion from the program. (Coulmont and Berthelot 2015, p. 146)

Annica stated that even the though their company is taking part of the UNGC, she did not feel that this functioned as a driver for decisions to invest in energy efficiency. She argued that being affiliated with the UNGC is more of a way to show stakeholders that they are conducting business in a sustainable way. Annica stated that taking part of the UNGC did not facilitate in any way to get access to e.g. green capital. The same point was made by Lucas and Uma who stated that he did not feel that e.g. UNGC it drove him to invest in energy efficiency, but it was more of showing responsibility to stakeholders.

Sonja when asked about how UN is affecting them she stated that the UNGC is something that their company has decided to take part of voluntarily. Sonja stressed the point, that taking part in the UNGC is not profitable for them in any way and that the main driver is the contribution to a good cause. Sonja also pointed out that there has not been any pressure from the company’s stakeholder e.g. owners to participate in the UNGC but that their owners are have been very positive towards the initiative to participate. Sonja also pointed out that the same principles apply to them wanting to be ISO certificated. Sonja argued that upside of being affiliated with e.g. the UN and being ISO certified is that they gain an argument, for negotiating with their contractors and suppliers on why they want to work in a certain sustainable way. She argued that it is very important for them to work with suppliers that share their values on sustainability.

Mike made another point when asked if he is taking part of all of this program just to gain image benefits, he stated that the matter should be viewed from another perspective. He argued that the pension funds are his company’s customers and by being affiliated with e.g. UNSDG they as a company are able to better customize their value proposition to the customer and thereby deliver a product to the customer that they are looking for. If they would not be affiliated with UNSDG they risk that the pension companies would choose one of their competitors instead that are taking part of e.g. the UNSDG. Mike also stressed the point that it is important to distinguish between companies that have a sustainability director or someone in charge of sustainability. He argued that it is very easy for companies that are less involved with sustainability, to get away
with being affiliated with e.g. the UNGC without doing any real sustainability work. He claims that some companies are just using e.g. UNGC as an instrument for green for washing the company.

4.2.1.2 National Standards

The EU would represent the second biggest economy in the world, if it would be considered a single country. Therefore the EU plays an important role what comes to tackling global warming and is taking part of several conventions aspiring to stop the planet from warming up too irreversible temperatures.

The EU is taking part of the United Nations Framework Convention on Climate Change (UNFCCC) that was agreed upon in 1992 and is the main international agreement on fighting climate change. The world’s first legally binding instrument for tackling greenhouse gas emissions was the 1997 Kyoto protocol which the EU also took part of. The Kyoto protocols second period started in 2013 and will end in 2020: Commitment to the protocol means that all committed parties have agreed on reducing emissions by at least 18% below the levels measured in 1990 (COMM/DG/UNIT 2017a).

Other climate conventions that EU is part of: Intergovernmental Panel on Climate Change, G8, G20, Major Economies Forum on Energy and Climate, Organization for Economic Cooperation and Development (OECD) and the International Energy Agency (IEA) (COMM/DG/UNIT 2017a). The EU has also committed to the Paris Agreement which aims to limit the global temperature from rising over 1,5 °C compared to pre-industrial levels.

To reach all the climate goals that the EU has committed to, the EU has implemented a long-term strategy ending in 2050. The strategy is supposed to send strong signals to the market to encourage private investments in new pipelines, electricity networks, and low-carbon technology. The EU argues that meeting these targets does not substantially differ from the price of replacing aging energy systems (ENER/DG/UNIT 2014a). The strategy consists of several milestones divided for 2020, 2030 and 2050. EU’s goals together with Sweden’s goals are presented in Table 3.

<table>
<thead>
<tr>
<th>Year</th>
<th>2020</th>
<th>2030</th>
<th>2050</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHGs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU</td>
<td>-20% (1990)</td>
<td>-40% (1990)</td>
<td>-80-95% (1990)</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>-40% (1990)</td>
<td>-63% (1990)</td>
<td></td>
<td>Committed to EU Goals</td>
</tr>
<tr>
<td>Renewables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU</td>
<td>20%</td>
<td></td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>50%</td>
<td>n/a</td>
<td></td>
<td>No strategy for 2030 yet</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU</td>
<td>20%</td>
<td></td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>20%</td>
<td>50% (2005)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: EU’s and Sweden’s climate goals
To reassure that EU reaches its climate goals for 2050, a set of directives have been prepared. The directives could be seen as a minimum level of commitment, that is required from each member country. The member countries commit by creating their own national level regulations based on the EU directives these are demonstrated in Table 3. There are some mandatory requirements e.g. all the EU countries are required to support renewable energy sources and to reduce the energy usage of their buildings and industries by improving the energy efficiency (COMM/DG/UNIT 2017b).

There are two key laws on EU level what comes to buildings, the *Energy Performance of Buildings Directive* and the *Energy Efficiency Directive* (EED) which is also called *EED Article 7*. These two directives function as bases for the EU members to draw their own national laws on, and includes several aspects e.g. energy performance certificates, inspections of heating and air condition systems and minimum energy performance requirements (ENER/DG/UNIT4 2014b).

According to the EED article 7 all EU member countries are obligated to develop a national action plan on what energy efficiency measures are going to be taken. The action plan is to be handed in every three years to the EU, starting from 2014. The action plan describe what kind of measures are going to be taken to improve energy efficiency and estimated and/or obtained energy savings. (Boverket & Energimyndigheten. 2015).

Due to that Sweden is a member of the EU, Sweden’s regulations what comes to energy efficiency is heavily related to different directives put in place by the EU. To reach EUs climate goals Sweden has developed national level goals, which are demonstrated in Table 3. The comparison demonstrates that Sweden’s climate goals are much more ambitious than what is required by the EU e.g. Sweden is aiming to reduce GHGs with 40% by 2020, compared with the EU that is aiming to reduce GHGs with only 20%.

The energy usage can be followed up by energy declarations that are mandatory in Sweden for all buildings being built, sold or rented out. The energy declarations contains information about the buildings energy consumption and is aimed towards buyers and tenants and aspires to make the buyer more aware of the buildings actual energy consumption. (Boverket & Energimyndigheten. 2015)

Annica stated that she believes that generally in the industry one reason why projects are not conducted is due to lack of knowledge. She argued that building owners usually do not know what to do. Annica also felt that there is not enough pressure e.g. from the government to driver building owners to carry out projects. Annica demonstrated her scepticism towards government policies with an example; where building owners must make an energy declaration of their building but that the energy declaration does not require building owner actually to do anything.
about the building. Sonja made a similar point to Annica and pointed out that if her company’s work would be compared to the government minimum requirements her company would be a clear over achiever.

### 4.2.1.3 Financial Incentives

The European Energy Directive (EED) was adopted in 2012 which did not only generate new energy efficiency policies, but also new financial support mechanisms across the EU member countries. The public funding plays an important role, what comes to reaching EU’s energy efficiency goals for 2020. A study conducted by ECOFYS (2016) states that the total amount of EU public funding for energy efficiency grew from about €6 billion in 2012 to about €7.1 billion in 2014. Most of the funds went to the building sectors which got funding for about €5.4 billion in 2014. The most common format of funding in 2014 was available means of loans (€2.7 billion), grants and subsidies (€2.2 billion) and fiscal incentives (€1.6 billion) (ECOFYS 2016).

The money funded by the EU can concretely be seen on Swedish national level for instance in a program by the Swedish Government that encourages companies to invest in solar energy and has therefor budgeted SEK390 million every year between 2017-2017 to be used for investment subsidies for solar projects. The money is distributed by the Swedish Energy Agency to the County Administrative Board (Länsstyrelserna) where companies can apply for subsidies for solar projects. The subsidies are granted for various types of solar energy installation projects (Energimyndigheten 2015b). As of 2015 the maximum amount of subsidies for companies is 30% and covers the part of subsidies entitled part of the installation costs.

Annica stated that she did not find financial subsidies e.g. from the state to drive them to invest in energy efficiency. She argued that the industry is arriving to an era where energy efficiency projects are starting to be very profitable even without subsidies. She argued that it is very hard to rely on getting subsidies due to that there is a lot of uncertainty involved in the application process and the processing time usually is very long. Overall, she found that subsidies are very time consuming and that there are other things that can be prioritized instead of wasting time on applying for subsidies.

Sonja made a similar point to Annica and stated that the uncertainty of getting subsidies is very high and therefor does not influence their decision making on energy efficiency projects. She argued that the financial risk of projects is not decreased by applying for subsidies, because in the best-case scenario the subsidies are granted after the projects have been completed and therefor in the planning phase it does not really drive decisions but functions as a small bonus in the end instead. Uma had faced the same problem when applying for subsidies for one project. The approval decision came 9 months later and at that point and therefor argued that they were not able to rely on the subsidies when calculating the on the profitability of the projects.
Similar points were made by Lucas who found that handling subsidies for solar cells was difficult, due to that it put pressure on their organisation to know and to figure out a way, on how the taxes should be played which just turned out to be expensive.

The Nordic Investment Bank (NIB) who for instance have granted loans for Swedish real-estate investment companies and other various energy efficiency projects, states that they are constantly looking for energy efficiency projects to finance. They see that there is still so much untapped potential in the building sector in the Nordic countries both what comes to housing and commercial properties and service facilities (Marckert 2017). A study conducted by the Swedish Energy Agency (Energimyndigheten 2015a) suggests that one of the biggest barriers for investing in renovation of existing buildings is due to low evidence on viability of the projects and access to financing of the projects.

The bank Nordea functioning has launched Nordea Asset Management's (Nordea AM) Responsible Investment Approach that is an environmental, social and governance proactive approach for investing money. This means that to be granted investments from the fund the company needs to meet Nordea’s AM criteria’s which include among other that the company’s operations are in line with e.g. the United Nations Global Compact. The aim with the fund is to take an active ownership role that aims to promote sustainable profitability and risk management in portfolio companies. Companies seeking investments need to demonstrate how they handle climate change related questions in their business strategies, investment decisions and risk management. The company should be able to show how they identify and capitalize on opportunities related to climate change. The companies should also be able to report on the outcome what comes to sustainability. (Nordea 2017)

Another way of financing energy efficiency projects is by using green bonds. Green bonds were launched by the World Bank in 2008 and is a “Strategic Framework for Development and Climate Change”. The green bonds support projects that address climate change by investing money that the World Bank has raised from fixed income investors seeking to mitigate climate change or to help people that are affected by climate change (World Bank 2016). The bonds work in the same way as ordinary bonds but with a guarantee that the money is invested in projects that seek to prevent climate change.

Kevin stated that one part of their company strategy is to conduct business with a relatively low risk. This is achieved among other things by having a very high equity ratio compared with e.g. other real estate investors who usually have much more debt than Kevin’s company. Based on these arguments Kevin stated that they he did not really see any reason why they should investigate financing their energy project with e.g. green bonds.

Lucas stated that money was not really an issue for his company either. He argued that, because his company was investing pension money there had always been money around to invest if
needed and therefore he had not really investigated e.g. green loans. Lucas argued that if an energy efficiency project was not conducted it was not due to that there was no money to invest but rather due to other reasons e.g. due to unprofitability of the project.

Sonja made a similar point to Lucas and stated that they do not have much loans, partly because they also are investing pension money and that there is a lot of money around to be invested if needed. She however argued that she could see that if they could get easier access to e.g. green bonds, it could function as a driver for investing in projects that would increase the energy efficiency of their buildings.

Annica was the only one of the interviewed that found e.g. green loans and bonds provided a very attractive alternative for investing in energy efficiency. She argued that the loans and bond had a driving impact on the decisions. She argued that due to that green loans usually have lower interest rates they decrease the company’s financial costs making investments in energy efficiency even more attractive.

4.2.1.4 Energy Certificates

When reviewing the annual report of five of the big real-estate companies listed on the Stockholm Stock Exchange, it was found that all five companies have buildings that have environmental certificates (Castellum 2017; Fabege 2017; Klövern 2017; Kungsleden 2017; Wallenstam 2017). All of the companies also stated that they have plans on continuing working towards certifying more buildings and that it is an important part of their future strategy. Arguments for certifying was among other things to increase transparency towards the tenants.

In Sweden the most used certification systems are LEED and bream BREEAM. In Sweden the so called Miljöbyggnad which is a Swedish parameter is also widely used. The characteristics of the certificates are described in Table 4.

<table>
<thead>
<tr>
<th>CERTIFIED BUILDINGS</th>
<th>MARKET</th>
<th>BUILDING TYPE</th>
<th>PARAMETERS MEASURED</th>
<th>ACCORDANCE</th>
<th>LEVELS</th>
<th>OWNER</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILJÖBYGGNAD</td>
<td>1000</td>
<td>Sweden</td>
<td>Flexible to building type</td>
<td>16 different parameters</td>
<td>With the Swedish laws and regulations</td>
<td>Gold, Silver, Bronze</td>
</tr>
<tr>
<td>LEED</td>
<td>92 000</td>
<td>Global</td>
<td>Flexible to building type</td>
<td>Depends on the level</td>
<td>Environmental impact</td>
<td>Platinum, Gold, Silver, Certified</td>
</tr>
<tr>
<td>BREEAM</td>
<td>500 000</td>
<td>Global + Swedish version available</td>
<td>Flexible to building type</td>
<td>Depends on the level</td>
<td>Environmental impact</td>
<td>Outstanding, Excellent, Good, Pass</td>
</tr>
</tbody>
</table>

Table 4: Differences Between Certification Standards

(Lützkendorf and Lorenz 2007; Council 2017a, 2017b, 2017c)
Annica stated that energy certifications play a crucial role for her company. The reason is that many of their tenants require that their offices are energy certified. Annica stated that they must take their tenants' strategy into consideration. She argued that certifying buildings does not result in increased rental income but not certifying buildings increases the risk of losing or not gaining tenants, which directly affects the vacancy of the buildings which again affects the rental incomes. She concluded with stating that it is important to certify buildings so that it can be showed to the tenants. Annica also argued that certifying the buildings makes it more transparent when buying and selling a building and that the certificates functions as a quality stamp for the building. Annica stated that energy certificates facilitated for getting access to green capital due to that it is common that banks issuing green loans require the company to have certified buildings to be granted a loan and that this directly functioned as a driver for Annica’s company to certify their buildings.

Annica stated that some tenants have policies that the buildings where they function should be certified and not having a certified building can result in a lot of bureaucracy where a lot of papers must be filled in explaining why they are not renting a certified building. In these cases, it can be easier for Annica’s company just to certify the building to gain a new tenant.

Lucas had many similar arguments to Annica and argued that it is more of a hygiene factor to certify buildings than anything else. He stated that their tenants can place a demand that the space rented need to be certified. Therefore, not certifying buildings can lead to a situation where the tenant chooses another landlord which again results in decreased vacancies which directly affects the company’s revenues.

Kevin’s company owns real estate in most expensive areas and their tenants are willing to pay a higher price for their space due to the good location. Kevin stated that they are certifying buildings, but that it is not as important for them to certify buildings compared to other real estate investors who must compete more for gaining customers and where they can use certifying of buildings as a selling argument. Kevin concluded with that their tenants choose them, because of the location and not because of the certified buildings in other words certifying buildings does not provide Kevin’s company with a competitive advantage.

Both Lucas and Annica stated that that at the moment there is a high demand for certified buildings and that tenants in some cases use certified buildings as a bargaining variable especially in cities where there are other landlords competing with certified buildings. Annica also said that she been in situations where a tenant asked for a lower rent for a space in a building due to that it was not certified.

Mike states that the good thing with building certificates is that they are property and not company specific as e.g. is UNGC and other initiatives. Mike argued that that the biggest value that these certifications provide is that they provide a kind of guarantee that the property has
been taken care of. He also argues that it has a decreased risk effect. The certificate makes it easier for his company to buy and sell buildings when both parties are able to make more informed decision with the help of the certificate. Mike stated that the certifications could be looked upon as part of a kind of due diligence when buying a property. Mike stressed the point that in e.g. the real estate funds consisting of pension money that his company is managing, the investors, in this case the pension companies do not care about the certifications and are much more interested in corporate level stamps like the UNGC.

Annica, Mike and Lucas all stated that they did not believe that certified buildings would generate higher rents but is generally much more of a hygiene and quality stamp and it decreases the risk of declining vacancy’s. They all also stated that they believed that having a certified building helps to attract tenants. Mike argued that having a certified building is a good pitch to the customer. He stated that their tenants can take usage of functioning in a certified building by e.g. adding it to their annual or sustainability report where it gains marketability.

What comes to certifying buildings Sonja argued that she sees certifications as a quality factor. It shows that the owner is taking care of the building. She argued that the certifications can function as a driver for investing in increasing energy efficiency for instance if one wants to reach a higher level of e.g. LEED certifications. However, she stressed the point that it is very dependent on what the building is used for. They might have a very highly certified building but because of the purpose of what the building is used for it can have an effect of decreasing the certifications level e.g. in a fire station.

### 4.2.1.5 Customer Strategy

According to a report produced by Energimyndigheten (2013) there are three main types of rental agreements. The first one is a so called "cold rental agreement " (CRA) where the tenant pays for all of the energy consumed that is consumed by the tenant. CRA requires that measuring of the energy consumption is possible so that the tenant can be invoiced accurately. The second format of agreements are so called "warm rental agreements" (WRA) where the real estate owner pays for the whole buildings energy consumption. Usually in WRAs a fixed energy cost has been added to the tenants rent. The third format is a hybrid where part of the energy costs are covered by the real estate owner and the other part by the tenant.

Energimyndigheten (2013) argues that the most common format of rental agreement in Europe are CRAs except in Sweden and Finland were WRAs are the most common. Energimyndigheten (2013) states that depending on what kind of contract exists between the owner and the tenant, also the incentive to invest in increasing energy efficiency shifts. In CRAs the tenant has an incentive to decrease the energy consumption became it directly effects the tenants costs. In WRAs it is in the real estate owners interest to decrease the energy consumption because it directly affects the real estate owners costs. (Energimyndigheten 2013)
Lucas stated that if the tenant is paying for the energy it is not as attractive for them to conduct projects due to that it is the tenant that gains all the profits from the projects by having lower costs. Lucas stated that tenants quite seldomly initiate any energy efficiency projects due to that it is not in their interests mainly due the fact that their tenants usually have WRA and therefore the tenant does not directly gain any e.g. financial benefits. He however, pointed out that some governmental tenants take some initiatives to initiate energy efficiency projects. Lucas thought that one driver for governmental tenants is that government wants to encourage landlords to decrease their energy consumption from a social perspective.

Kevin made a similar point to Lucas and stated that their customers are not usually paying directly for their energy bill but that the energy bill instead is included in the fixed rent. Therefore Kevin argued that their tenants did not really initiate any energy efficiency projects. Kevin argued that due to the structure of the rental agreement the incitements to decrease the energy consumption laid more in their interest than the tenants. Kevin also pointed out that his company attracts tenants that are willing to pay high rents for their space because of the good location. Therefore their primary tenants interest is the location of the building and not the energy consumption of the building.

Sonja, Uma and Mike who also argued that tenants themselves rarely initiate any projects. Sonja stated that the tenants can require that the building is certified with an energy certificate and uses green energy. Mike stated that if the tenant is paying for the energy themselves they initiate little bit more projects compared with tenants that have a fixed rental agreement.

4.2.1.6 Reporting Protocols

The European Public Real Estate Association (EPRA) that represents publicly listed property companies, investors and their suppliers argues that voluntary sustainability reporting has become increasingly more common in the European real estate sector (EPRA 2017b). EPRA sees that the main reasons for this is an increased debate about mandatory sustainability reporting both on EU- and national level as well as that investors have become more interested in non-financial data.

The Global Reporting Initiative (GRI) is a not for profit organization that has developed the GRI Sustainability Reporting Standards (GRI 2017) that is the most used sustainability reporting standard today. One reason for the popularity is a strategic partnership since 1999 with the United Nations Environment Program (del Mar Alonso-Almeida et al. 2014). GRI provides governments and business with tools to better communicate the public about sustainability.

sBPR is reporting standard that is largely based on the GRI standards from 2016. All European Public Real Estate Association (EPRA) members are compelled to report according to the sBPR guidelines. The report includes among other things e.g. total electricity consumption, total
district heating & cooling consumption, building energy intensity and GHG emissions intensity from building energy consumption. (EPRA 2017a)

Kevin stated that e.g. GRI does not drive them to invest in energy efficiency. Kevin concluded with: that even though they need to report what measures they have been taken he does not see GRI as a driver for investing in energy efficiency but more of a way to communicate to stakeholders what have been done about the company’s sustainability.

Lucas shared Kevin’s view and stated that GRI he did not feel that it drove him to invest in energy efficiency. He saw that the company’s internal reporting had a much bigger effect on him due to that they have their own goals and they need to report about them which drove them more towards investing in energy efficiency.

Annica on the other hand argued that GRI much clearly required them to act and to communicate about what measures they are taking and increased the communication towards the stakeholders on what measures had been taken to decrease the energy consumption. The GRI also requires them to name a responsible person for different actions which according to her was a very concrete way to make things happen and resulted in good results.

4.2.2 Corporate Level Drivers

4.2.2.1 Investment Horizon
Annica stated that they have a very long investment horizon and that due to the long investment horizon (>20 years) they are able to make investments in energy efficiency in another way compared to actors on the market making short term investments. For them it is feasible to do the investments because the long holding period makes it attractive to lower the costs compared e.g. with companies with shorter investment horizons.

Sonja had a similar argument to Annica’s and stated that their companies long term investment horizon (>20 years) together with their long-term rental agreements abled them to make long term energy efficiency investments at a low risk. She stated that calculating a project is quite straight forward when you have a tenant with a 25-year rental contract and the payback time of a project is e.g. 10 years. Sonja argued that the risk is almost non-existent when investing in increase the energy efficiency of a building when there are guaranteed rental incomes for the following 25 years. Her general point was that they are a long-term investor and that it has a very positive effect on what kind of investments they can conduct, compared to other players on the market with shorter agreements. Sonja also stated that the long-term rental agreements drives them to develop and improve their buildings, so that their tenants stay satisfied throughout the rental period and they are able to decrease the risk that the tenant would terminate the contract e.g. due to that the indoor climate has become worse over the years
4.2.2.2 Image Benefits

What comes to image benefits Annica stated that it plays a role but that their organization genuinely want to work for making this world a better place by decreasing their impact on the environment. She was stressed the point that investing in a sustainable way does not exclude the economic feasibility of the projects but makes it even more feasible from an economical point of view. She also stated that in their organisation she did not need to fight her way through to get these projects approved, because everybody had a mutual understanding in the whole organisation of what they want to accomplish with their sustainable way of working.

Kevin agreed that there are always the image aspects to energy efficiency related investment. Kevin did not however feel a direct pressure from the owners to invest in energy efficiency but that there is a feeling that stakeholders expected them to work in a sustainable way.

According to Uma a strive of gaining a green image can be seen in the industry. Uma argued that projects did not necessarily needed to be financially profitable as long as they reached a breakeven point. Uma argued that a strong driver was to boost the green image of the company. For instance, she stated that one project where solar panels where installed resulted in very much good publicity not only in Swedish newspapers but also in newspapers in other countries which was looked up on in a good way by the organisation.

Mike had a similar argument to Uma’s he stated that their investments do not always need to be profitable. He argues that they have made investments in solar panels that have yielded very low returns on investments because it has had a good effect on their internal sustainability goals.

Another aspect that Mike, Annica and Sonja brought up was that they all want to be industry leaders what comes to sustainability. Mike argue that the future generation are much more aware of where they want to work and therefore the company image matters for attracting customers as well as future employees who want to work for companies that are working with things that they value on a personal level.

4.2.2.3 Internal strategies

Mike stated that their company has a sustainability strategy and that this strategy guides a lot of his work. One reason is that he must report what actions have been taken to increase the sustainability. Lucas had the same argument and stated that they had a very stick internal sustainability plan that he was working towards. Lucas stressed the point that the whole companies’ management was committed to the plan and therefore it made it easy for him to conduct energy efficiency projects.

Mike also states that working with energy efficiency is a way of hedging against future energy policies. He states that starting to work with sustainability now, provides a competitive
advantage in the future when the legislation is tighten. According to Mike implementing a sustainability thinking in the future will be too late.

Uma found that one of the biggest bottleneck was the bounded rationally of some people in leading positions. She argued that especially people with business background could not grasp the overall benefits of conducting some energy efficiency projects. She stated that these people where only looking for e.g. how much savings does this investment generate profits per square meter. According to Uma this way of looking at the investments was not in line with reality. Uma argued that just steering at a number on how much savings are made per square meter does not give a good indication on what is actually achieved with the investment. Uma demonstrated her point with an example, where another real estate investor had stated at a conference that they had been able to drop their energy consumption with a certain amount per square meter, but when looking at how the reduction was achieved, it turned out that the company had sold all the real-estate with the highest energy consumption per square meter, and by selling the buildings with the highest consumption the overall energy consumption per square meter dropped resulting in very attractive looking numbers.

Uma’s also pointed out that at times it could be very hard to get projects to go forward due to lack of knowledge of some deciding parties, on what comes to energy technologies. She argued that the lack of knowledge at times could lead to the management invested in things that they did not understand and what resulted in less good outcomes. Another factor that she found was that the management sometimes outsourced the decision making of projects to facility management companies that the company had an existing contract with. According to Uma this set-up could at times lead to a situation where the facility manager, acted in a way that did not jeopardize their own image. The facility manager risked to put himself in an bad light if he suddenly would start taking measures, that would decrease the energy consumption significantly and the question would rise of why this had not been taken care of under the existing contract that the facility manager had with the real estate owner.

Mike made a similar point to Uma’s where he argued the bounded rationality can be an obstacle especially with people lacking technical knowledge, they do not always grasp, how energy efficiency investments generate money.

Lucas company has a very structured way to work with energy efficiency projects. They have developed a template that is used when doing energy audits of their buildings. The energy audit is then simplified into another simpler template that only contains the most important aspects of the energy audits. The idea with the template is that it contains only information that is important for taking decisions on energy efficiency projects. Lucas argued that the template works really well, due to that the whole management has committed to their sustainability goals of decreasing their energy consumption with a particular percent a year. Therefor when using
the template for making decisions it is easy to compare projects to each other and it is also much easier to communicate to people without technological knowledge what the benefits of the projects are because the key indicators on the template is the return on the investment of the projects and also includes other aspects like e.g. life cycle costs.

The working method developed by Lucas company requires that a stand is taken on what are going to be done about the suggested actions. If there for instance are four different measures to do it has to be argued for why one action is not carried out and when this action instead is going to be carried out. The internal sustainability strategy functions as a minimum requirement. People are free to do more but that is the minimum amount that is required. Lucas company is striving to have an energy plan for all of their buildings. However, Lucas argued that some projects are not carried out due to circumstances. For instance, if they felt that there is a risk that big tenant was leaving, it would not be as attractive for them to carry out projects and therefore some projects are not carried out.

Annica stated that the company’s primary function is to generate profit to the owners but that her company does not want to achieve the profit on the cost of the environment. She argued that energy efficiency projects especially with a longer investment horizon are very profitable resulting in that they can generate profit to the owners while decreasing their environmental footprint.

Uma found that to get investments approved she had to be able provide the leaders with a strong financial calculation showing the profitability of the project. She found that the most important indicators where life cycle costs and payback times. She argued that all projects that could show a payback time smaller than three years had to be conducted.

4.2.3 Property Level Drivers

4.2.3.1 Costs
According to Boverket & Energimyndigheten. (2015) a clear trend of energy savings can be seen in the housing and service sector what comes to energy usage for heating and tap water. Boverket & Energimyndigheten. (2015) argues that there are two main reasons causing the trend. The first one is that the amount of purchased energy has decreased due to increased installation of heat pumps. The second reason is that many households took actions to decrease energy consumption in the 90s due to increasing energy prices. Based on this it could be argued that one potential decision driver for real-estate investors could be to hedge against rising energy prices. This can be accomplished by investing in e.g. heat pumps and thereby become more self-sufficient. The Nordic Investment Bank (NIB) also argues that increasing energy efficiency will make companies more resilient towards changing energy prices and thereby better able to predict future costs (Marckert 2017).
Kevin argued that one reason why they are investing in e.g. geo heating is to decrease costs but also to be less dependent of energy suppliers e.g. district heating companies that have monopoly on the prices and by increasing their price Kevin’s costs goes up very much.

Lucas had a similar point and stated that one prominent driver for investing in energy efficiency projects is to decrease operating costs or at least have control over them. Lucas made the same point as Kevin and argued that investing in e.g. solar power or geo heating is a way for them to header against increased energy prices by becoming more self-sufficient even though there in e.g. Stockholm exist a fantastic district heating and cooling infrastructure. He felt that the energy companies otherwise have too much power and just a few cents increase in the energy price has a big effect on their total operating costs. What comes to the buildings value Lucas stated that it has a positive effect on the buildings value, but this is not something that is taken into consideration when deciding on the projects. According to Lucas the most important thing is to demonstrate decreased costs. The template used by Lucas company provides a very simple way to demonstrate how different measures affect the return on the investment of the projects. The company has set an internal rate of return that is aimed for with energy efficiency projects. This is so that the projects better can be compared to each other, the return on investment can be discussed and it has happened that projects with a lower ROI has been carried out.

Annica stated that they were doing quite big projects and when deciding on a project the payback time of the project is the most important parameter used to make decision about going forward. Annica also stated that another primary driver is decreased costs. She stated that increased property value is not considered as much as decreased costs due to that the actual property value is speculative until the actual point where there is a buyer willing to pay a certain price for the building.

Kevin stated that the main driver for investing in increasing energy efficiency is to decrease the costs of the property and to look at the ROI of the projects. The main driver being ROI. By decreasing the costs, they are able to gain a higher profit. He argued that it is a win-win situation where they are able to make a better profit at the same time when saving the planet. Kevin also stated that they sometimes have tried to calculate the LCC of projects but that it is a very complicated calculation and it is not always clear what should be taken into consideration.

Sonja, Mike and Kevin all brought that working with energy efficiency usually makes the indoor climate better, which positively affects the tenant and that by not keeping the tenant happy they would risk losing their tenants.

What comes to costs Mike states that there is no point for him to use increased property value as an argument when suggesting projects to his organisation. According to Mike the most important factors when he is discussing with his organisation is to provide a good internal rate of return. He states that decreasing the costs have a direct effect on their operations and that it
functions as a very concrete measure on the feasibility of projects. Increasing in property value on the other hand is speculative. He states that you won’t know if it had an affect or not before you sell the property.

Sonja argued that the return on investment was not the most important factor for her company. She stated that she sees energy efficiency investments as taking social responsibility. She stated that it was a way for her company to contribute the community. She argued that of course the projects have to make some kind of economical since but that they have carried out e.g. solar projects that have not been from the most profitable end, but due to the long rental contracts it has not really mattered what the ROI has been as long as it makes some economic sense. Throughout the conversation she stated that these are important issues and they as a company investing pension money have to invest in a sustainable way.

Kevin argued that energy efficiency is a very important aspect for them but that it must be taken into consideration that their rent level is much higher than the average rent level and there for decreasing energy costs does not have as much of an effect on e.g. their profit per square meter compared with companies with lower rental levels.

Mike who argued that he approaches their tenants differently depending on if the tenant is paying the energy bill them self or if the energy consumption is included in the fixed rent. If Mikes company is paying the energy bill he first prioritizes the buildings with the highest costs per square meter and the driver in this case being decreased costs. If the customer is paying the energy bill, he prioritizes customers with the highest energy bill, with the driver being that he won’t lose the tenant and therefor cash inflows.

4.2.3.2 Building Characteristics

Uma found that the building itself could provide some limitations what came to invest in increasing energy efficiency of building. Uma provided an example where her company wanted to install geothermal heating or cooling systems wanted to be installed it could not be done e.g. because the limitations of the room where it was planned to install or that it was impossible to drill in that room.

Annica on the other hand argued that there is always something that can be done about the buildings energy efficiency, some are of course bigger measures than others and that it is up to each technical discipline in her organisation to come up with suggestions on what should be done about the building.

Uma stressed the point that people with a business background quite often were looking for numbers that they could follow up and generally something very concrete that would be easy to grasp. According to Uma just staring at numbers does not explain the whole picture. She argued that one can’t say that this one investment has a certain return on the investment because there
are much more variables that are changing, changing one thing has an effect on other things that also generate savings e.g. an energy savings project can reduce maintenance costs significantly but the savings obtained in the maintenance is not seen in the energy efficiency calculation. Uma also argued that one plausible reason that business people so blindly stair at e.g. energy consumption per square meter is due to that it makes it easier to compare buildings to each other. Uma argued that this is not a logical way to approach the problem due to that all buildings are unique and react in different ways and the outcome is dependent on several factors e.g. when and where the building is build and what functionally the buildings has e.g. an office can't be compared to a hotel because there are significant differences what comes to e.g. when and how the space is used as well as how much ventilation is needed in the two different buildings.

Sonja made a similar point to Uma and stated that there are e.g. schools that would be perfect for installing solar panels on, but that the problem is that when the sun is shining there is no one using the school which results in that there is no point in carrying out the project when the energy can’t be stored anywhere. Another limiting factor can be what the building is used for e.g. if the building has high security standards it can become impossible to carry out any projects.

Kevin argued that most of the real estate are very centrally located and therefor e.g. drilling for geo heat is complicated with underlying tunnels and other cables. Also, most of their buildings are quite old and are protected by the museum. Therefor the building itself places very high limitations on what can be done in the building.

Lucas stated that the buildings maintenance persons can cause a risk on how successful different projects are. Lucas argued that this is especially the case if some enthusiastic person working with maintenance is involved in a project and later decides to leave, it easily can result in a situation where the reached savings slowly disappear because the archived benefits are neglected by the new maintenance personal.

5 Discussion

The following chapter will discuss and compare the literature reviewed to the empirical findings so that the research questions can be answered in the following chapter. The chapter follows the same structure as the framework and is divided into external, corporate level and property level drivers.
5.1 External Drivers

5.1.1 The United Nations
The literature finds different UN initiatives e.g. the UNSDG as drivers for investing in energy efficiency. Coulmont and & Berthelot (2015) argue that the main driver for taking part in the UNGC is to demonstrate good citizenship and most importantly to improve the company’s image.

From the empirical data it can be concluded that only 21% of the survey respondents felt that UNGC was driving them to invest in energy efficiency projects indicating that the UN is not a direct driver for investing in energy efficiency. The same conclusion can be drawn from the where all interviewees agreed that the UN does not function as a driver. Sonja and Annica both for instance argued that taking part of the UNGC was more of a way to show good citizenship and stressed the point that they did not gain any big advantages from being affiliated with the UN e.g. in the format financial advantages.

Sonja’s and Annica’s arguments are in line with the research conducted by Coulmont and & Berthelot (2015) who found that taking part of the UNGC is mainly to demonstrate good citizenship. Coulmont and & Berthelot (2015) also found that taking part of the UNGC is a way for investors to gain a competitive advantage, this point can be confirmed whit what Mike stated about customising his companies value proposition towards their investors so that they better could distinguish them self from rivals.

It can be concluded that being affiliated with the UN seems to be more of an instrument for investors to communicating to the outer world, that the company is taking social responsibility and therefore not directly increase investments in energy efficiency but in an indirect providing benefits for the stakeholder e.g. by gaining access to investments that require a certain green profile for their investments.

5.1.2 National Standards
The EU could be seen as an umbrella for the member countries, that is taking part of several global conventions and based on the conventions the EU sets up its own climate goals that are then funnelled down, providing the member countries with common goals and guidance for legislation. In this sense it could be argued that taking part of e.g. the Paris Agreement and/or the Kyoto Protocol are not direct decision drivers for the investors, due to that just by functioning in a EU country and by following the laws where the conventions are taken into consideration, the investor is indirectly taking part in the conventions. This can be demonstrated by two examples, where an investor renting out or selling a building is obligated by Swedish law to conduct an energy declaration on the energy consumption of the building and when renovating an old building the investor is obligated by law to obtain a certain energy level of the building. Therefor the investor is indirectly taking part of the Paris Agreement just by following the Swedish
law. Based on these arguments it can arguably be stated that governmental initiatives do not function as drivers for the real estate investor. If the investor would decide not to follow the law this would have juridical consequences.

Annica stated that the government is not according to her putting enough pressure on investors and that more pressure should be applied so that more energy efficiency projects would be carried out. Annica demonstrated her point by referring to the U.K where the government puts much more pressure on landlords to increase the energy efficiency of their buildings e.g. by landlord not being allowed to rent out building that is among the worst energy classes, before the energy efficiency of the building has been increased. Sonja made a similar point and said that their work is much more driven by their internal strategies and that the government could increase their demands and it would not be a problem for Sonja’s company to live up to the requirements.

5.1.3 Financial Incentives
Looking at the subsidies pumped in to the market, it is evident that the EU is pumping enormous amounts of money into the building sector to support improvement of energy efficiency in buildings. Different EU based funds are handling the distribution of the money that flows down to the government level. The money is then divided to stakeholders based on national level criteria with certain constraints from the EU. In Sweden this can be seen as subsidies for e.g. installing solar panels and tax cuts for micro producers. The goal with pumping money into to the market is to increase investments in buildings that are not yet energy efficient to make the more energy efficient.

Subsidies should arguably make it easier for real estate investors to take decision on investing in energy efficiency of buildings. The main argument for considering subsidies as driver is due to that investors need to tie a significantly lower amount of their own capital to subsidized projects, which results in an e.g. increased net present value (NPV) of the projects. This could arguably be considered as a prominent driver for installing energy efficiency technology in buildings.

The data collected is not in line with the argument mainly due to the uncertainty of being granted subsidies. The survey shows that 24% percent of the respondents considered financial subsidies to drive their decision to invest in increasing energy efficiency.

The interviews showed that the biggest bottle neck for e.g. Annica, Uma, Lucas and Sonja were that they considered applying for subsidies as a very time-consuming process with no certainty of being granted any subsidies. They also argued that if there is no certainty of getting the subsidies it has no effect on their decision e.g. due to that the risk level of the project stay on the same level. Lucas argued that some of their solar projects had been approved subsidies but that
it increased their administration costs because the organisation had to learn how to handle the
tax procedures of the subsidies.

In their research Sweco (2014) found that the investors did not experience any financial
boundaries and that the investors almost always were able to access either internal or external
capital as long as they could back up their investment propositions with feasible calculations. This
argument could be confirmed in the interviews especially by the Annica, Lucas and Sonja who all
where investing pension money and did not experience getting access to capital as a boundary
for making energy efficiency investments.

Another aspect to take into consideration is risk that arguably plays very important role what
comes assessing financial feasibility of projects. Mills et al. (2006) found that there is a
fundamental difference in how e.g. technical experts understand risk compared to investors.
Technical experts understand risk as something that can be solved with a technical solution.
Whereas investors understand risk as uncertainty. This argument can be linked directly to Uma’s
argument where she stated that especially managers with a business background prefer solid
numbers what comes to investments.

It can be concluded that government-based subsidies are not a prominent driver for Swedish real
estate investors due to the complexity and uncertainty of the application process. What comes
to green loans e.g. Annica found these to be a driver due to that it provided her company with
an opportunity to decrease their financial costs as a result of green loans usually having lower
interest rates.

5.1.4 Energy Certificates
Geller et al. (2006) argues that energy certificates are not effective if not combined with financial
incentives. This can be linked to both the survey and the interviews.

The survey proved that the majority (62%) of the respondents found that energy certificates was
driving their investment decisions. The same thing was found from the interviews. Annica for
instance stated that not certifying the buildings increases the risk of losing or not gaining a tenant.
This could be seen as a financial incentive where revenues are lost if not certifying the buildings.

Falkenbach et al. (2010) found in their research that 2-17% of tenants are willing to pay higher
rent for certified buildings. This argument could however not be confirmed from the data
collected for this thesis. It was evident that tenants in Sweden are not willing to pay higher rents.
However, not having an energy certified building, increases the risk of losing tenants which again
directly effects the company’s cash flows.

Another aspect that could be found from the interviews was that the certificates function as a
quality insurance and communicate to stakeholders that the building has been taken good care
of. Annica argued that having a certified building can also facilitate for gaining easier access to
green loans due to that some banks use the certified buildings as a key performance indicator for granting green loans. This could be seen as a direct decision driver, because increasing the energy efficiency of an inefficient building would facilitate for obtaining an energy certificate which could give access to external capital. This driver however does not seem to be that powerful, because out of the interviewees, Annica was the only one that considered green loans as a very attractive financial instrument.

Falkenbach et al. (2010) found that another reason for certifying buildings was to be able to compare to buildings to each other. The same conclusion can be drawn from the data collected. Uma for instance argued that especially people with business background like to have very concrete numbers so that they are able to compare different buildings to each other. Lucas had a similar argument with their internal template that made it much easier to compare different projects to each other.

Luo and Bhattacharya (2006) argue that taking CSR affect customer satisfaction and satisfaction directly affects company revenues. Looking at the empirical data gathered the energy certificates could be seen as taking CSR. The argument is that by certifying ones building the company’s business becomes more transparent. Having a certain level of energy certificate tells the tenant exactly what the environmental impact of the building is. From the interviews it could be found that the tenants especially in cities with high supply of energy certified buildings the tenants required to have certified buildings. This arguably drives investors to invest in gaining a certain level of energy certificate level which directly drives investments in increasing energy efficiency.

5.1.5 Customer Strategy
The most prominent driver that was not found in the literature was rental agreements. In Sweden the most common type of rental agreements is so cold warm rental agreements (WRAs). This means that the tenants them self do not have any financial incentives to increase their energy efficiency. If the landlord is paying for the energy it is also the landlord who gains the savings from increasing the energy efficiency.

Falkenbach et al. (2010) found that customer strategy is decision driver. From the survey it could be found that 68% of the respondents answered that only 1-25% of the conducted projects are initiated by the tenants. This low number of initiatives from the tenants can be explained with some answers from the interviews. All of the interviews agreed that the tenants rarely initiate any projects because they do not really gain anything them self from initiating projects. Lucas stated that it happens sometimes with e.g. governmental tenants who want to encourage real estate owners to increase their energy efficiency. Sonja also pointed out that the set-up can be different if there is only one tenant using the building. This phenomenon can be linked to warm (WRA) and cold rental agreements (CRA). Most of the theory studied for the thesis, focuses on other countries than Sweden. Due to that Sweden together with Finland are among the only
countries in Europe where WRAs are used, there are very little incentives for tenants in Sweden initiate energy efficiency projects compared with the rest of Europe due to that the tenant does not financially benefit from the savings obtained from energy efficiency projects. The real estate owner on the other hand has much more incentives to carry out energy efficiency projects when all savings can be seen as cost cuts.

Out of all the interviewees Mikes company had the highest amount of different rental agreements e.g. CRA, WRA and share energy agreements. Mike stated that he primarily focused on increasing the energy efficiency of the buildings were the tenants had a WRA due to that he was able to gain the best returns on these buildings. Mike also stressed the point that he also looked at buildings with CRA because if the energy costs for the tenants where at a very high level the risk of losing the tenant was also high. This is a very important point to take into consideration due to that high costs can result in tenants seeking other space to rent with lower rents.

Another internal investment strategy related driver was discovered in the interview with Kevin. The company that Kevin works for, owns real estate located at the most attractive locations close to central business districts. Kevin argued that their tenants were looking for top location and not energy efficient buildings. There for it could be argued that Kevin’s company due to their prime location did not have the same incentives that compared to other real estate owners with e.g. buildings located in areas with more competition. Kevin stated that their tenants were willing to pay a higher price for their building. In this sense it can be concluded that the location and the amount of competition that exists in the area affects the decision making what comes to energy efficiency.

It can be concluded that structure of Swedish rental agreements driver Swedish real estate investors much more to invest in energy efficiency compared with the rest of the Europe due to the that the inventors directly profit from the cost savings.

5.1.6 Reporting Protocols
Falkenbach et al. (2010) found reporting protocols to be one decision driver for real estate investors in their research. del Mar Alonso-Almeida et al. (2014) found in their research that the main reason why reporting protocols are considered to be decision drivers is to be transparent towards stakeholders.

From the survey it could be found that 28% respondents found that reporting protocols e.g. GRI drove them to invest in increasing energy efficiency. From the interviews very, divided opinions could be found. For instance, Kevin’s comment was in line with del Mar Alonso-Almeida et al. (2014) argument that GRI is just a way to communicate transparency to their stakeholders. Lucas,
Uma and Mike did not find that GRI drove them to invest any more in increasing their energy efficiency.

Annica was the only one of the interviewed who found that the GRI was a very straight forward way of working. She argued that the good thing was that the GRI required them to name a person for each task that needed to be handled. She argued that this resulted in that when a certain person was made responsible this person also assured that actions were taken.

Mike, Lucas, Annica and Sonja all argued that their internal sustainability reporting protocols was the prominent driver that drove them to invest in energy efficiency. They all said that it functioned as a basis for their work.

It can be concluded that reporting protocols drive energy efficiency investments. This however seem to require that the real estate investor has a sustainability plan which can be communicated to stakeholders through various reporting protocols.

5.2 Corporate Level Drivers

5.2.1 Image Benefits

Falkenbach et al. (2010) identifies image benefits as the only corporate level driver. From the data collected it is evident that image benefits paly a very prominent role for instance 85% of the survey respondents found that improvement of company image had a medium or high effect on how they make decisions about energy efficiency. Out of the respondents 57% considered improvement of company image as the second most important decision driver after returns on investments.

From the interviews it was found that image benefits played an important role, but it was more seen as a consequence from making good investments. Sonja, Annica, Lucas and Mike stated that the energy efficiency projects need to be financially feasible and that the good publicity that comes with it is just a plus. A good image facilitates for doing business in the future.

Mike whose company needed to raise money from pension funds pointed out that it is important for his company to look good to the outer world e.g. by reporting their actions so that it would be easier to raise money from investors. A similar argument was made by Lucas who also stated that reporting is a very important thing what comes to improving the company’s image. Mikes and Lucas argument is in line with Falkenbach et al. (2010) research where they found that companies are very eager to promote their sustainability work in e.g. their annual reports.

It can be concluded that image benefits are not the prominent reason why projects are conducted and does not directly drive decision making. The importance of image benefits can however not be undermined because it is crucial to communicate to stakeholders that the company is working in a sustainable way. In this sense the image benefit could be seen as an
instrument that can be used for communicating responsibility to stakeholders as well as facilitating for raising capital from investors that have requirements on the sustainability of their investments but not as a direct driver for making the investment decision.

5.2.2 Internal Investment Strategies
Högberg (2011) argued that companies investment horizon directly affects how willing real estate investors are to invest in energy efficiency. From the empirical data it can be concluded that the company’s investment horizon plays a prominent role.

All of the survey respondents had and medium investment horizon (6-10 years) or a long investment horizon (>10 years). From the interviews it could be found that e.g. Sonja, Annica and Lucas who represented the investors with the longest investment horizon, all agreed that the investment horizon plays a prominent role. Mike with an investment horizon of 5-10 years also agreed that the investment horizon played a prominent role when making decision about investing in energy efficiency.

The main argument why the investment horizon, is so important is due to that majority of the survey respondents (88%), found that maximising the ROI of projects, was the most important decision driver. With a longer investment horizon, the investors are able to gain returns on a longer period of time compared to e.g. investors with a shorter investment horizon who have limited ability to conduct bigger investments that have longer payback periods. In other words a long investment horizon decreases the uncertainty of energy efficiency investments, a long investment horizon on e.g. 20 years can tolerate uncertainty in a different way than an investment horizon on e.g. 5 years.

The same result could be found from the interviews where all of the interviewees responded that ROI of projects, is by far the most important key performance indicator for projects. However, all the interviewees pointed out that some projects are conducted even though they only provide a small return or only reach a breakeven point as long as the projects does not result in losses.

What could not be found in the literature, but what was brought up by five out of six interviewees was that the length of their rental agreement plays a very important part when making decisions about increasing energy efficiency. Sonja for instance argued that the investment decisions for her company for buildings with tenants with 25 yearlong contracts, it is easy to take decisions. Having guaranteed cash inflows, decreases the risk and drives the decisions in a positive direction. This argument can also be linked back to the Swedish market’s that mainly is using WRAs and therefor it is more in the interest of the real estate investor to increase the energy efficiency of their buildings.

Cajias et al. (2014) divides companies into three types of profiles depending on their level of commitment to environmental social responsibility (ESR). It could be found from the interviews
that everyone seemed to have a genuine concern for the environment. Annica, Sonja and Mike all stated that they did not want to make their profit by destroying the planet. Annica raised the question of what would entitle their company to invest today's pension money in a way that destroys the planet so that the future pension payers won't have a world.

A report produced by the consulting company Sweco (2014) found that investors almost always could access internal and external capital as long as the projects could be backed up with feasibility calculations demonstrating the project to be profitable. A similar phenomenon could be found in the interviews. All interviews agreed that they were able to carry out projects if they could demonstrate calculations that showed the project to be profitable. Uma however criticised the method and argued that it is very hard to determine what makes a project feasible. She argued that just starting for instance on how big savings could be accomplished by conducting an energy efficiency project and measure it in saving per square meter did not make sense to her. She stated that the bounded rationality of some managers made it difficult at times to get approval for projects. Uma’s arguments could be linked to what Cajias et al. (2014) refers to as information asymmetries where for instance projects that are not understood by some managers are assigned higher internal interstates making the projects less attractive when compared to alternative projects. The report by Sweco (2014) also found that energy efficiency projects to be successful the management needs to be committed to decreasing the energy consumption of the company. This is confirmed by the interviews conducted where e.g. Lucas stated that the company’s management has committed to using their energy efficiency project template. Annica stated that due to that their whole organisation is committed to the sustainability work she does not need to spend time convincing the organisation of the benefits of conducting energy efficiency projects.

It can be concluded that the internal investment horizon, the ROI of the project and the commitment of the management, on a corporate level drives decision made about energy efficiency.

5.3 Property Level Drivers

5.3.1 Costs and Property Value
Falkenbach et al. (2010) identifies increased rental levels, decreased property costs, decreased risk and increased property value as the four main property decision drivers.

From the survey it can be found that 90% of the respondents find that increase in property value has a medium or high effect on their investment decision. It could also be found 94% of the respondents found that decreasing property level costs had a medium or high effect on their investment decision. From the interview it could be found that the most important driver was to decrease the costs.
It can be concluded from the data collected that decreasing the costs are the most important driver which is in line with Falkenbach et al. (2010) research. Kevin and Lucas both stated that investing in e.g. solar panels and geothermal heating enables them to decrease their dependency of energy suppliers and make them more resilient towards rising energy prices. Especially what comes to district heating companies who have a monopoly on the district heating network. Kevin and Lucas argued that just a little increase in energy prices has a big impact on their energy costs. As a conclusion it can be stated that energy efficiency investments enable them to hedge against raising energy prices.

What comes to increased property value it is not as straightforward. Mike demonstrated this point with arguing that decreasing the energy costs of the building has a direct effect on costs, whereas increased property value is speculative and can only be confirmed when the building is sold. This was a point that was confirmed by Sonja, Annica and Lucas.

5.3.2 Building Characteristics
Another driver that could not be found in the literature was the building characteristics themselves. The question of how much the building itself affects investment decisions was added to the survey based on an interview that was conducted before finalising the final version of the interview. The question got an importance rating of 4.35 out of 5 indicating that the building and its characteristics play a crucial role. From the interviews numerous of examples could be found on how the building affects the decision making.

Uma provided an example where she would have liked to install a geo thermal heating into a building but because the only place in the building that the equipment could be fitted into had a very low room height, it was impossible to fit the equipment and therefore the project was determined. Kevin provided another example, due to that their company mainly owned very old buildings and almost all their buildings are protected by the museum authority it has resulted in that the projects become quite heavy due to that the inheritance value of the building needs to be taken into consideration.

Arguably the location of the building affects what kind of projects are possible to carry out. Kevin argued that due to that their buildings where so centrally located it was very hard to drill wells for geo thermal heating first of all because there were so much other buildings on the sides and underweight the building there was a big risk of hitting cables and tunnels. Drilling for geo thermal well also required that the building would have a parking spot.

What comes to location it could be found from the interviews that e.g. Kevin and Lucas, both working for companies with real estate investments located in quite central locations with access to district heating. As discussed earlier in this chapter both Kevin and Lucas argued that they felt the monopoly of district heat companies to be a risk for them and that heading against raising
energy prices was a decision driver for them. Both Kevin and Lucas stated that just a slight increase in energy prices has a significant impact on their energy costs. Therefore both argued that they were looking into decreasing their dependency by e.g. installing geothermal heating systems so that the building could supply its heat or most of its heat without third party actors.

6 Conclusions

This part summarizes the whole study by answering the research questions and updating the framework developed in the theoretical part. The chapter is concluding with suggestions on possible future work.

6.1 Research Questions

“What are the primary decision drivers for real estate investors to invest in increasing energy efficiency of commercial buildings in Sweden?”

The framework developed from the literature has been updated (see Figure 7) and now demonstrates what according to this study are considered to be prominent drivers on the Swedish market.

It was found that the customer’s strategic decisions, environmental and energy certificates and reporting protocols function as prominent external decision drivers. United Nations, national standards and financial incentives was found to not directly drive real estate investors to invest in increasing the energy efficiency of their buildings.

On the corporate level it was found that the company investment horizon, internal investment policies function as prominent drivers. The type and length of rental agreements were recognised as a corporate level driver and added to the updated framework. Image benefits according to the study are not considered to be direct corporate level drivers.

What comes to the property level decreased property costs was considered the most prominent driver. From the research the building specific characteristics were identified as a prominent driver and added to the framework. Increased property value was not considered to be a direct driver for energy efficiency investment.
On the Swedish market it could be found that from the external drivers the United Nation, the EU, Swedish national legislations, financing and subsidies do not function directly as decision drivers for real estate investors. The main reason is that e.g. the UN is more company than property based. What comes to the Swedish legislation, all market actors must follow the law and therefor it does not provide any competitive advantages. It could also be found that most of the investors interviewed did not find the Swedish legislation to be strict enough that it would encourage investments into energy efficiency. Finding financing for projects was not found to be a problem, with the main finding was that investors could always get access to capital if they were able to provide feasible calculations for the projects. It could be found that applying for subsidies contained so much uncertainty that it was not considered to drive investment decisions.

Image benefits, property value and financial incentives could be seen as having a medium effect on decision making. Image benefits for instance was considered a very important element, but more as a plus from carrying out feasible and environmentally friendly projects. Image benefits was not considered to be a direct driver. A similar pattern could be found in the increased property value, were the increase property value was more of a consequence of decreasing the property costs. In this sense the primary driver was decreasing the property costs which had a positive consequence of speculatively increasing the property value as well.
The most prominent drivers found on the Swedish market were energy certificates, customer strategy, rental agreements, reporting protocols, investment horizon, decreasing property costs and building characteristics. Out of these driver’s rental agreements and building characteristics that could be added to the framework developed in the theory section.

It is important to stress the point that the Swedish market has different kind of incentives to conduct energy efficiency projects. Due to that the most common format of rental agreements in Sweden are WRA, it increases the incentives for the real estate owner to invest in increasing the energy efficiency of the building much more, compared with CRA were it is more in the tenant’s interest to increase the energy efficiency. It also must be taken into consideration that the real estate investors investment horizon and the length of the rental agreements play a crucial role. Having guaranteed cash flows for a long period of time decreases the risks of investing in energy efficiency projects. Long investment horizons also enable investors to make bigger investments with longer payback times in other words capital intensive investments.

Another aspect is that energy efficiency investments enables real estate owners to become more independent from energy supplier while at the same time cutting costs. Investing in e.g. solar panel and geothermal heating projects enables the investors to hedge against rising energy prices. This comes with the constraint of the rental agreement, investment horizon and payback time. Long investment horizons enable companies to make investments with long payback times.

6.2 Future Work

To be able to decrease the buildings stocks energy consumption in Sweden from todays 40% it is important to understand what drives real estate investors decision. Understanding the business logic of real estate investors enables energy efficiency service providers to better customize their value propositions. On a macro level politician can gain a better understanding of what could be done about increasing energy efficiency of the existing building stock. At the moment a lot of subsidies can be found on the Swedish market, but the market seems to interoperate these subsidies more as a gamble, than an encouragement to make investments due to long waiting times and bureaucracy around being granted subsidies. Therefor future work would be needed, to gain a better understanding of how the legislation that in the existing literature is recognised as a decision driver around the world, could become a decision driver in Sweden as well.

In the beginning of this this thesis the question of financial feasibility of energy efficiency was questioned, as a conclusion of this study it can be stated that energy efficiency project in Sweden generally seem to be very feasible with the constraints earlier discussed in this study. However, these investments could be made even more feasible by making the subsidies more accessible to investors and decrease the uncertainty of being granted subsidies related to the application process.
Future studies could investigate what e.g. the United Nations, the EU and the Swedish government and other macro level actors could do to actually encourage real estate investors to invest more in energy efficiency. At the moment all these macro level actors are able to reach the company level, but it has more of an image benefit to attract more capital than actually driving concrete investment decision of making a building more energy efficient. A better understanding of the decision drivers would also increase the chances for the macro level to reach their climate goals for 2050.

7 Publication bibliography


