Valuation of Fabege AB

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Executive Summary

The aim of this paper has been to undertake a fundamental analysis of the Swedish real estate company Fabege, in order to come up with an estimated fair value of its share, as of March 31st 2017.

All-time low interest rates along with a strong growth in GDP and employment rate has boosted the Swedish real estate market, resulting in a tremendous increase in rent prices and occupancy rates. This has sparked debate of an overheated real estate market and a risk for a property bubble. In that light, a fundamental valuation of one of Sweden's largest real estate companies has been undertaken.

In order to perform a comprehensive and accurate valuation of a real estate company, a lot of emphasis was given to a strategic analysis of the real estate market and the most imperative factors influencing it. By analyzing the macro- and microenvironment of Fabege, it was concluded that a steep population growth, along with an increase in employment would continue to fuel the demand for commercial properties in coming years. Furthermore, as the supply of commercial properties will continue to be limited, many companies have decided to relocate its offices to adjacent suburbs, foremost Solna and Hammarby Sjöstad.

Based on the findings from the strategic analysis and the results from the financial analysis, it was concluded that the key value drivers for Fabege are the market rent and the level of vacancy.

In its turn, these two chapters laid the foundation for the forecasting of Fabege's future profitability.

As Fabege focus a lot on property development, and has approximately 350 000 sqm of approved development rights in Solna and Hammarby Sjöstad, they are well positioned to capitalize on the predicted growth in these areas. In addition, Fabege's existing property portfolio, which consists of many attractive properties in Stockholm Inner city, is predicted to stay profitable as market rent and occupancy rate are believed to increase even further.

After having forecasted Fabege's expected free cash flows, the DCF- and EVA model was used to calculate the fair value of Fabege's share, resulting in a share price of SEK 171,4, which can be compared to the market price on the same day (31st of March 2017) of SEK 142,5. A multiple valuation was used as a sanity check to see if the estimated share price seemed reasonable.

In order to critically assess the result and the underlying uncertainties in some of the estimated inputs in the DCF-model, a Monte Carlo simulation and sensitivity analysis was applied. The results from the simulation revealed more about the underlying uncertainty in two of the most imperative variables for Fabege, the market rent and the level of vacancy, and how changes in these inputs, given their estimated uncertainties, would affect the predicted value of Fabege.

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Chapter 1 – Introduction

Background

The Swedish economy has prospered over the last years with a strong growth in GDP and increased employment rate (OECD, 2016). Accordingly, as companies have expanded, the demand for office space and other commercial properties have increased significantly. All time low interest rates and easy access to cheap financing have made it favorable for businesses and homeowners to invest in properties.

Not only have businesses demanded more office space, but also become more particular when choosing locations. Yet, the limited supply of space in the central areas of the largest cities, have forced new building to the adjacent suburbs outside of the inner cities. (JLL, 2017; Fabege, 2016)

The strong demand along with the shortage of supply of commercial properties have resulted in a steep increase in real estate prices and rent levels across the Swedish real estate market (JLL, 2016). Since the financial crisis in 2008, rent levels in central Stockholm have more than doubled, and the value of properties have in many cases three folded (Fabege, 2016; JLL, 2016). As a consequence of this, many experts and analysts argues that Sweden, and in particular Stockholm, is at risk of a housing bubble (Riksbanken, 2016; SvD, 2016). Just recently, the founders of the Swedish music streaming company Spotify, sparked debate when they suggested that the high rent levels and lack of available housing make it difficult for them to afford its office premises in central Stockholm, as well as attract the best employees, thereby they could be forced to grow in other countries outside Sweden (DN, 2016).

Furthermore, the Swiss investment bank UBS, recently made a statement that Stockholm was the third most over-valued property market in the world, behind London in second place, and Vancouver in first (SvD, 2016). UBS argues that the dysfunctional rental market provides no incentives to solve the problem of long lasting supply shortage. And even though the government, through increased regulations, has tried to cool down the housing market, no results are still to be seen (SvD, 2016).

The Swedish central bank concludes and further argues that the high indebtedness in Swedish households opposes a potential threat to not only the Swedish real estate market, but also the entire Swedish economy (Riksbanken, 2016).

Conclusively, there are many factors indicating that the Swedish property market could be overheated. In this light, conducting a valuation of a Swedish real estate company focusing on the Stockholm property market seems highly relevant. Accordingly, the Swedish property company Fabege, which almost exclusively focuses on commercial properties in the Stockholm region has been chosen for this case study. By performing a comprehensive valuation of Fabege, it is possible to gain further insights into the industry and understand what factors that drive value for the company. Also, it is of equal importance to identify and understand the risk associated with investing in this company. However, a valuation is

unquestionably a subjective and difficult task, requiring qualified assumptions about the future prospects for the company.

Problem discussion

Analyzing the annual reports of Swedish real estate companies over the last few years, it can be concluded that the largest source of revenue stem from unrealized changes in value of investment properties. This have become in particularly prominent in recent years since the property market has experienced such a rapid growth. However, unrealized changes in investment properties entails no actual inflow of cash, instead it is an accounting based income. At first sight, this can be misleading since most of the Swedish real estate companies may look more profitable than they actually are. As the unrealized gains in value of investment properties increase the value of assets in the company, it also allows the company to increase its amount of debt, since they have more assets that can act as collateral. Since companies are allowed to deduct interest costs in Sweden (KPMG, 2016), and since interest rates are all time low, it has arguably become favorable to obtain larger amount of debt. Consequently, a lot of real estate companies have debt to value ratios of 50% and more (Leimdörfer, 2016). Increasing the amount of leverage in a company, also increase the level of risk. Considering this, small rises in interest rates can potentially have large impact on highly leveraged companies. Thus, it seems important to pay extra attention to certain inputs, such as interest costs, unrealized value changes and revenue growth rates, when conducting a valuation of a real estate company.

A DCF valuation only accounts for the systematic risk, thus disregards from all firm specific risk. If considering two similar companies, they can be attributable with the same systematic risk imposed from the market, but differ significantly in firm specific risk (Brealey et al., 2011). This means that the estimated cash flows may be the same, but the underlying uncertainty in those estimates might be different. Since the real estate market is dynamic, complex and affected by numerous factors, it is very hard to make fair assumptions. Consequently, there is a certain extent of inherent uncertainty in those estimates since these inputs only are best guesses given a wide range of potential outcomes (Hertz, 1964; Nowak & Hnilica, 2012). A more developed method to use when evaluating the risk and uncertainties inherent in the inputs of the DCF model is a Monte Carlo Simulation. The Monte Carlo simulation estimates the input variables as probability distributions rather than static values as in the DCF model. As a result, the Monte Carlo simulation runs a large number of simulations and thereafter presents a whole set of different estimations of the share price and their probability of occurring. It is believed that using a Monte Carlo simulation will reveal more about the underlying risk and uncertainty in a real estate company, which otherwise usually is embedded, hidden or excluded in the estimated inputs of the standard DCF model.

Purpose & Research Question

Given the background and preceding problem discussion, the purpose of this thesis is to conduct a valuation of the listed Swedish real estate company Fabege. In addition to the deterministic DCF valuation, a Monte Carlo Simulation will be included. It is believed to increase the level of transparency in the inherent uncertainty in the estimated inputs. Ideally, this will add reliability to the overall valuation.

The specific research question that this study seeks to answer is:

"What is the theoretical fair value of Fabege's share price as of March 31st 2017"

The main research question is answered through a number of sub questions outlined below, which will be discussed and analyzed throughout the paper.

- What are the predicted future developments of the Swedish commercial property market, focusing on Stockholm?
- How is Fabege strategically positioned with regards to the predicted future developments?
- What macroeconomic factors have the largest impact on the Swedish real estate market?
- How is revenue from property generated?
- How can the future revenue of Fabege best be modeled and calculated?
- How should the financial statements be adjusted to best reflect the operational performance of Fabege and its peer group companies?
- What are the key value drivers of Fabege?
- What are the major risks factors facing Fabege?
- What is the theoretical stock price of Fabege when using the DCF-model?
- How should the results of the Monte Carlo Simulation be interpreted and implemented in the overall valuation?

Delimitations

Several delimitations and assumptions have been necessary to undertake to prevent the study from escalating outside the scope. As in all research, it is important to be selective when collecting information as the intention should be to conduct an accurate analysis in relation to the research question. Accordingly, focus of this paper has been on factors that are deemed to have the greatest impact on the research question. Since the aim of this paper is to undertake a fundamental analysis of Fabege, resulting in an estimated fair value of its stock price, only theories and models that are relevant for this subject are used. Accordingly, a PEST-framework, Porters Five forces and a SWOT-framework is used for the strategic analysis, while the DCF-model including CAPM and a Monte Carlo Simulation, as well as the EVA-model is applied for the financial analysis, with a multiple valuation used as a sanity check.

Worth noting, the estimated value of Fabege, which is derived from using these models, should only be considered as a predicted value and not the actual true value of the company. It is seemingly impossible to include all factors and inputs that influence the true value of a company. However, as will be discussed in the theoretical section, the abovementioned frameworks are deemed as the most relevant for the specific research question.

Other models could have been applied and the outcome would arguably have been similar, however, this is considered to be outside the scope and therefore, financial- and strategic models such as VRIO-framework, real options, decision trees, Fama French three-factor-model and annuity valuations will not be considered in this paper.

As an external valuation of the company is undertaken, only information and data accessible to the public is used. Internal company information would arguably have been more accurate, but difficult, if not impossible to obtain. Thus, only public information available up until the cut-off date of March 31st have been used. Any additional information after the cut-off date has not been taken into consideration.

Fabege's property portfolio consist 98% of commercial properties and 2% of residential buildings (Fabege, 2016), however, for simplicity and in order to be consistent, the entire property portfolio is treated as if it consisted of only commercial properties.

Additional simplifications and assumption will be made and explicitly stated throughout this paper, however, to get a better overview, these will be addressed in the respective sections.

Outline

To help the reader get an overview of the thesis, the overall structure is illustrated in figure 1.1.

The first part of the thesis is an introductory chapter including a brief background discussion on the choice of topic followed by a problem discussion and ultimately a section concerning the delimitations to the paper.

The second chapter (Methodology) and the third chapter (Theory) is devoted to the research method, and the economic theories and frameworks applied in the study. In the fourth chapter, a presentation of the company's history, characteristics, strategy and corporate governance is outlined.

After the descriptive chapter of the company, the strategic analysis is conducted. In the strategic analysis, the strategic frameworks presented in the theoretical chapter are applied to the case study, and a thorough analysis of the real estate industry is presented.

The strategic chapter is followed by a financial statements analysis, in which the annual reports are reorganized and adjusted for valuation purposes. As a result, the financial key ratios and value drivers are identified and elaborated upon. In addition, a liquidity risk analysis is deemed necessary to highlight the potential liquidity risk that may arise in real estate companies due to its high financial expenses.

Based on the findings from the strategic- and financial analysis chapters, the forecasting of Fabege's performance is conducted in chapter 6. The expected free cash flows and ROIC have been estimated using the key findings from the strategic analysis and by comparing Fabege's historical data with that of its peers. After having forecasted each of Fabege's line items between the years 2017-2026, the chapter ends with a discussion regarding the estimation of the company's terminal value.

In chapter 8, the financial frameworks discussed in the theoretical section along with the estimated free cash flows are used to calculate the fair market value of equity for Fabege as of the 31st of March 2017. The DCF-framework acts as the fundamental tool in the valuation process. To finalize the valuation process, an EVA-valuation, and a sensitivity analysis including a Monte Carlo simulation is used to estimate the sensitivity and the underlying uncertainty in the most imperative variables.

The final chapter of the thesis contains a discussion of the calculations and assumptions behind the findings, which ultimately leads to the conclusion of this paper.

Figure 1.1
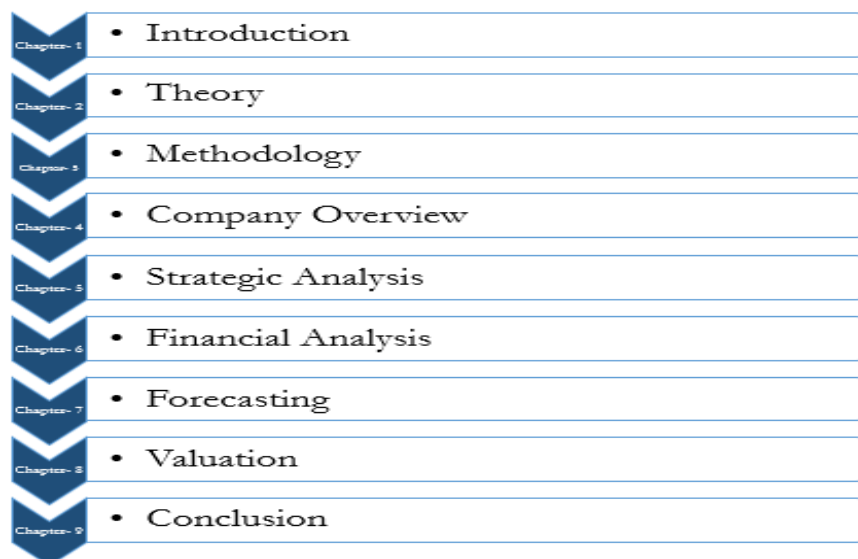
Source: Own contribution

Chapter 2 – Methodology

It should be acknowledged that research can be conducted in multiple different ways, for different reasons, and can be analyzed from different perspectives. In this chapter, it is elaborated on the underlying philosophy and perspectives adopted in the thesis, and how this has effected the process.

Saunders et al. (2009) highlights the importance of being able to reflect upon the philosophical choices made in the study and to understand the alternatives that could have been adopted. The philosophy used

will contain assumptions about worldview, which further has an impact on the research strategy and the methods used to conduct the study (Saunders et al., 2009)

Furthermore, Saunders et al., (2009) also make the distinction between ontology, epistemology and axiology, which refers to different ways of considering research philosophy. The adoption of either will affect the considerations related to the research process. A distinction is also made between different research approaches, primarily between deduction and induction, which is related to the adopted philosophy. (Saunders et al., 2009)

Before elaborating on how this paper relates to research philosophies and the different approaches, this chapter will first provide an introduction to the different paradigms, the major ways of thinking about them, and how it relates to the research approach.

The Different Perspectives to Philosophy

As mentioned above, there are different ways to think about philosophy. From the ontology perspective the nature of reality is considered as the most important aspect, as it emphasizes the role of social actors and its impact on how the world operates. The epistemology perspective on the other hand, focus on what constitutes acceptable knowledge. From this perspective the focus is to determine what data that can be considered as reliable given the aim of the study. Finally, research philosophy also evolves around the discussion of the role of values. This perspective is called axiology and is closely related to studies on judgment. From this perspective much focus is on how and if values effect the study. This perspective is also related to ethics and emphasizes how the researcher's values are important in order to create credibility. (Saunders et al., 2009)

Ontology, Epistemology and Axiology

This study has indeed elements that can be studied from all of the tree different perspectives. This is done to some extent, which is possible due to the adaptation of a pragmatic philosophy. However, the view of epistemology is most prominent throughout the thesis. An epistemology view in combination with a pragmatic philosophy indicates that the researcher has a practical applied focus, and that different perspectives are combined to understand data (Saunders et al., 2009). This is consistent with both using qualitative and quantitative data.

Paradigms

There are four major philosophies which represent different worldviews; positivism realism, interprevitism and pragmatism. (Saunders et al., 2009)

Positivism

With a positivistic philosophy the researcher tends to base his conclusions on facts rather than impressions. The process when conducting a study will often be based on existing theories and a hypothesis that is developed and tested. From an ontology perspective, a researcher will view the nature of reality as objective and does not believe that social actors influence it. From an epistemology perspective with positivistic philosophy, the focus is on generalization and observable phenomena, only observable phenomenon can be used as credible data. Meanwhile a positivistic philosophy from an axiological perspective will assume that the researcher will maintain an objective stance to data and will not have any subjective values that may influence the choices of how to handle and interpret data. (Saunders et al., 2009)

Realism

Realism is an alternative philosophy, which assume that reality is independent of the mind. Critical realists however believe that different people can interpret the reality differently, even though it's independent. From an epistemology perspective, knowledge can either be interpreted similarly to the positivism, or by considering that data can be misinterpreted and that data needs to be explained in a context. From an axiology perspective it is considered that researchers tend to have biases. (Saunders et al., 2009)

Interpretivism

In contrast to positivism, interepretivistic psychology emphasizes differences between individuals and suggests that a lot of the focus should be on interpreting results in its social context. From an epistemology perspective, data is given a subjective meaning and a lot of the emphasis is on the details of the situation. Axiology suggests that the researcher should be considered as a part of what is investigated. (Saunders et al., 2009)

Pragmatism

Finally, pragmatism can be considered as a more open-minded philosophy where the focus is rather on the research question when conducting a study. Pragmatism is open to the idea that different paradigms can be preferred for different questions. This philosophy also suggested that it is possible to use variations of the three ways to view philosophy. (Saunders et al., 2009)

This Study - Pragmatism

The philosophy adopted in a study is often related to the authors view on the relation between knowledge and how it is created, but can also be a result of practical implications. However, it should be noted that a research question does not necessarily have to fit perfectly to a specific philosophy. (Saunders et al., 2009)

The philosophy used when conducting this thesis is most aligned with pragmatism. First and foremost because the authors believe that different perspectives are preferable for different types of questions. It is also the author's opinion that strictly choosing one of the paradigms is unrealistic in practice, which suggests that Pragmatism is the most suitable.

Furthermore, the choice of philosophy does also have practical implications. The pragmatism philosophy enables a combination of a deductive and inductive approach, which is believed favorable considering the research question. Since the research question is regarded from an investor's point of view, a strict commitment to positivism, realism or interpretivism would potentially limit the study. On example of this is that valuation theory includes financial analysis, which tends to be deductive but also strategic analysis, which tends to be inductive. Combining deductive and inductive studies is believed to be most in line with the pragmatic philosophy.

Research Approach

There are two major research approaches, deductive and inductive. The way a study is conducted differs dependent on which approach the researcher applies. The deductive approach is used if the intention is to test a hypothesis by applying theory. On the other hand, if the intention is to create new theories based on collected data, induction will be used. In addition to this, the nature of the research topic and the emphasis on research also tend to impact the decision. For instance, if there already is a lot of research available and if it's possible to set up a framework and a hypothesis, a deductive approach tends to be more suitable, and vice versa. A key difference between the two is that the deductive approach tends to focus on quantitative data, while the inductive approach emphasizes qualitative data. (Saunders et al., 2009)

Deductive and Inductive Approach

Finally, neither the deductive nor inductive approach is perfectly applicable to this master thesis.

The deductive approach is applicable since the study contains foremost quantitative data and is based on a lot of existing theories and frameworks, which is common in the deductive approach (Saunders et al., 2009).

However, although there are multiple frameworks and theories available for company valuation, it is not that many theories that are specifically targeting the real estate industry, which in its turn stress the importance of adaptability. This approach, which seemingly requires more flexibility, is more in line with induction (Saunders et al., 2009).

Moreover, qualitative studies are also included in the thesis, which is more significant with the inductive approach.

Conclusively, it seems reasonable to apply a combination of deductive and an inductive approach to this case study.

Research Strategy

The research strategy is usually classified based on the purpose of the research. There are three major categories for this; exploratory, descriptive, or explanatory studies. The purpose of this case study is related to the process of understanding a problem, as well understanding the nature of the problem. This situation is in line with exploratory studies.

The strategy adopted for this thesis has also much in common with the single case study strategy. Case studies in general refers to study a phenomenon within real life, using multiple sources of evidence. In case studies, the context surrounding the phenomena is often important to consider. As the context is important, different sources of data is common for case studies (Saunders et al., 2009).

Data Collection

This paper is based on multiple sources of information including; annual reports, external data from Reuters Datastream, expert reports, and estimates from Bloomberg. Much emphasis has been on data from annual reports, first and foremost from Fabege, but also from Fabege's peer group companies.

It is acknowledged that the annual reports are based on data provided by the company itself, which causes a risk for biases. However, considering the fact that the *Swedish Companies Act* requires that all annual reports are audited, there is no reason to question the reliability of the annual reports. Furthermore, data gathered from sources such as Reuters Datastream and Bloomberg are considered as reliable sources since these sources are commonly used by practitioners in the industry, and provided through Copenhagen Business School's databases. Most of the prior studies and literature are also collected through CBS Library, which increase the reliability of these sources. Some reports and market analyses are however collected from other external sources. The use of such data is critically evaluated and included based on good judgment.

Secondary data

This study is exclusively based on secondary data, i.e. data that is initially collected for some other purpose other than for this study (Saunders et al., 2009). Although using primary data would be optimal, this is difficult since access to primary data is scarce, and also because many of the frameworks used in this study requires data which is unrealistic to obtain in first hand (Koller et al., 2005). In addition, much of the data, such as historical financial data from Reuters and Bloomberg, is easily accessed through resources provided by Copenhagen Business School, thus can be more efficiently obtained.

On the other hand, the access to specific market data is less accessible. The reliability of this paper would arguably become more reliable if company specific data was less restricted and more transparent. This issue is most prominent when searching for data about the companies' properties. However, since this

type of data is not possible to collect first hand, this paper is based on the data available, and in some cases qualified assumptions.

Chapter 3- Theory

Financial Frameworks

Valuation Models

There are several valuation models that can be used to analyze a real estate company. Equal to a strategic analysis, the goal is to find a model that is suitable for the selected case company.

The DCF model is recommended as the primary valuation model for valuing companies because it is considered to be the most accurate and flexible method for valuing companies, as it relies on cash flows rather than accounting based earnings (Koller et al., 2005). Accordingly, it will be used as the primary valuation model.

The Enterprise DCF-model will also be accompanied with an Economic Value Added Model, which is a valuation method that rest on the clean-surplus assumption, i.e. that all revenues, expenses and gains/losses in the forecast period are also reflected in the income statement (Petersen & Plenborg, 2012). The purpose of incorporating the EVA-model is to gain a better perspective on the actual return and profitability of the company. Since the EVA- and DCF valuation should yield identical results, the EVA-model can also be used as a sanity check, to ensure consistency in all assumptions throughout the valuation. Ideally, this will strengthen the credibility of the overall valuation.

A Monte Carlo Simulation will be used as a more sophisticated approach to evaluate the risk and probabilities of different outcomes in the DCF model. The Monte Carlo Simulation will estimate the inputs in the DCF-model as probability distributions instead of static values. The simulation will run a large number of simulations, therefore providing a whole set of different company valuations. This set of different projected values can then be interpreted and categorized according to the different probabilities of them occurring based on the occurrence frequency in the simulation process. As a result, a final valuation output will be estimated given the probability distribution from the Monte Carlo simulation, in combination with the single static value given by the DCF framework.

The relative multiples valuation is used as a third valuation model, to test if the DCF- and EVA model has provided reliable results compared to similar traded stocks in the market.

The Discounted Cash Flow Model

The DCF Model is the most used valuation method within capital budgeting in practice and is widely accepted by academics and practitioners up to this date (Graham & Harvey, 2001; Brealey et al., 2011).

The DCF model considers three important parameters; future cash flows, the time value of money and project risk (Brealey et al., 2011) By discounting future cash flows to a present value and adjusting for risk and time value of money, investors can analyze the value and return on investment.

One important factor to consider when constructing a DCF-model is the choice of cash flow level. There are two main levels that could be used for a DCF valuation. The first alternative is to estimate the project free cash flow (PFCF), also called Enterprise Discounted Cash Flow, which is the operating cash flow accessible to both equity holders and creditors. The enterprise-discounted cash flows are discounted by the Weighted Average Cost of Capital (WACC), which represent the risk faced by all investors. The WACC contains the required rate of return for debt and equity, based on the target capital structure. (Koller et al., 2005)

The other alternative is the equity value approach, which assesses the operating cash flow accessible to only equity holders. For calculating a company's equity value, there are two alternatives. One is to calculate the enterprise value of the company and then subtract the value of all non-financial claims (debt) net of non-operating assets. The other alternative is to calculate the value of equity cash flows directly and then discount them with the same return on equity. Both methods for calculating a company's equity value should yield identical results if applied correctly. (Brealey et al., 2011; Koller et al., 2005)

However, according to previous research the enterprise discounted cash flows model is the most common approach when valuing a company and referred to as the standard model (Koller et al., 2005). It is also the approach that will be used in the thesis.

WACC

Since the free cash flows are available to all investors, the discount factor should represent the risk faced by all investors. The standard discount factor used by most companies is called the Weighted Average Cost of Capital (WACC), which blends the weighted rate of return required by both debt and equity investors.

$$WACC = \frac{E}{(D+E)} \times Re + \frac{D}{(D+E)} \times Rd \times (1 - Tax\ Rate)$$

Source: Own creation based on (Koller et al., 2005)

The equation above illustrates how the return of equity and cost of debt are weighted together given the market value of equity (E) and debt (D). Note, that the cost of debt has been reduced by the marginal tax rate. This is because of the interest tax shield that has been excluded from the free cash flow. Since the interest payments on debt are tax deductible, they have a value and must therefore be incorporated in the valuation (Koller et al., 2005). The Enterprise DCF model value the tax shield by decreasing the WACC and therefore increasing the valuation.

Even though the WACC is rather intuitive and straightforward it has some complications. If all future

cash flows are discounted with the same cost of capital, it also assumes that the company has a target ratio for its capital structure and that it remains constant (Koller et al., 2005). A company that plans to increase its debt-to–value ratio will then have a cost of capital that understate the expected tax shields. If the debt ratio or level of business risk changes over time, the WACC should be recalculated. It is possible to adjust the WACC for a changing capital structure and risk level, however it's complicated. To be able to recalculate the capital structure or the correct level of business risk in the WACC, it's important to understand the different inputs in the WACC.

Cost of Debt

The cost of debt is the rate of return required from creditors. According to Koller et al., (2005), the cost of the most recently issued bonds by the company itself should be considered as the best estimates of the company's cost of debt. If the company issues no own bonds, then corporate bonds issued by similar companies with the same credit rating can be used as an estimate of the cost of debt (Baker & Powell, 2009; Koller, et al., 2005). However, if there is no official credit rating available, Damodaran (2016) suggest that one can create a synthetic rating to estimate the cost of debt. Based on a company's financial ratios, it's possible to categorize it amongst other rated firms with similar ratios and characteristics. Once the company has been assigned a synthetic rating, for example A+, it can be used to estimate the expected default spread, which when added to the risk free interest rate yields the pre-tax cost of debt. It is recommended to always use an up to date interest rate, and not the interest rate, which was relevant when the debt first was issued (Brealey et al., 2010).

Return on Equity

The return on equity is harder to estimate than the cost of debt. This is because equity holders are residual claimants of the cash flow and their return is not explicitly stated on a contract as it is for debt holders. The return on equity is an estimation of the required return that equity investors demand given the specific risk of the company, whereas the cost of debt are actual outgoing payments to debt suppliers. (Petersen & Plenborg, 2012)

There are various methods for calculating the estimated risk adjusted return that asset investors require for investing. The most famous model for estimating the cost of equity is *The Capital Asset Pricing Model*, developed and published by Sharpe (1964). The model is based on modern portfolio theory and takes into account the assets sensitivity to non-diversifiable risk (systematic risk), measured by the quantity beta (B_e) in the financial industry, as well as the expected return of the market (R_m), and an expected risk free interest rate (R_f). Moreover, the model assumes that all other risk except the market risk can be diversified away in a portfolio of different assets and therefore the investor should not be compensated for taking on such risk, i.e. unsystematic risk. (Brealey, et al., 2011)

$$Re = Rf + Be \times (Rm - Rf)$$

There is other alternative pricing models to determine the cost of equity, for example the arbitrage pricing theory (APT) constructed by ROSS (1976) and the Fama French three factor model developed by Fama & French (1995). Unlike the Capital Asset Pricing model that only use a single factor to determine the risk, the APT model and Fama French three-factor model use multiple factors to better estimate the assets risk.

However, in this paper, the CAPM model is used, as it is the most acknowledged model and widely used by companies in their capital budgeting and capital structuring decisions (Koller et al., 2005; Graham & Harvey, 2001; Romano, 2005).

Risk free interest rate
The risk free rate defines how much an investor can earn without taking any risk. To estimate the risk free rate in developed economies, a highly liquid, long-term government bond is recommended. Government default-free bonds, such as the 10-year or 30-year zero coupon strip is usually a good estimate for the risk free rate. Ideally each cash flow should also be discounted with a risk free rate with similar maturity. However, although the 30-year government bond will better match the maturity of the cash flows in perpetuity, it may also suffer from illiquidity, thus affecting the underlying risk of the security. Thus, it is more common in practice to choose a risk free rate, which matches the entire cash flow stream being valued. (Petersen & Plenborg, 2012).

Market Risk Premium
The market risk premium should be seen as the excess return that investors require for taking on systemic risk in addition to the risk free interest rate. Estimating the market risk premium is arguably the most debatable issue in finance. Since no single model for estimating the market risk premium has gained universal acceptance, there are three general models to use.

The first method calculates forward-looking premiums by using a regression analysis on current financial ratios, such as the dividend-to-price ratio, to estimate the expected market risk premium (Koller et al., 2005).

The second approach is the "implied method" were the market risk premium is estimated using current market rates or prices on assets today, usually this is done by a regression or an option-pricing model were the chosen market index is seen as the underlying asset. (Koller et al., 2005)

The third approach use historical returns to calculate the future market risk premium. The historical market return should ideally be compared to long-term government bonds. This is because long-term government bonds better match the duration of the company's cash flow than short-term bonds. Choosing this method to examine the historical market risk premium, the issue is what length of history to

examine. Since historical returns vary widely over time it is hard to make accurate estimations without any errors. If the actual market index has performed very well during the estimation period, the premium will be overestimated and so on the contrary, if the market index has performed relatively bad the estimations might be too low. Over the last 100 years, no statistically significant trend has been observable on the U.S market, hence predicting a future market risk premium based on historical returns is difficult. As an example, US stocks outer performed risk free bonds with 18% in the 1950s but in the 1970s they offered no premium at all. Given the lack of an accurate long-term trend and the volatility of short periods, the longest time series possible should be used. (Koller et al., 2005)

Since it is possible to conclude that there is no single model that is better than the other to accurately estimate the market risk premium, only calculated guesses and assumptions can be made about the specific market risk premium (Koller et al., 2005). Thus, choosing a market premium based on previous research should be considered just as reliable as any new attempt to calculate the market risk premium (Koller et al., 2005). However, the estimation of market risk premium may have a larger impact on the valuation than any of the other inputs in the DCF-model, thus the quality of the estimation is essential for making a fair valuation. As the market risk premium based on historical values is generally accepted as the standard textbook model, it will be used in this thesis (Titman & Martin, 2011; Koller et al., 2010)

Estimating raw beta

Beta is used in the Capital Asset Pricing Model as an estimate of how much the stock and market move together. There are several models that can be used to make a fair estimation of beta, however, for companies listed on the stock exchanges, the standard model is to do a regression analysis of historical stock returns with the returns of the market portfolio as an explanatory variable (Berk & DeMarzo, 2006).

$$(Re - Rf) = a + Be \times (Rm - Rf) + e$$

Source: Own creation based on (Koller et al., 2005)

As shown in the regression model illustrated above, the excess returns(Re) are regressed above the risk free rate (Rf), from the firms stock, with the market return premium as the explanatory variable. The a is the intercept and e is the regression error. There is no singular standard for the measurement period, however using five years of monthly data has been confirmed appropriate, which is also the measurement period used by many data providers such as Standards and Poors and Value Line (Black et al. 1972; Koller et al., 2005)

Regarding the frequency of measurement, using monthly data is recommended since more frequent measurements make the beta estimation unreliable as it leads to systematic biases (Koller et al., 2005). Further, the market has more explanatory powers for longer return periods than it does for daily or

weekly returns (Mukherji, 2009). In this thesis, monthly returns during a five-year period will be used for the beta estimation.

Estimating unlevered industry beta

In order to improve the estimate of beta, an industry- rather than a company specific beta is recommended. The idea is that companies in the same industry face the same operating risk, thus they should have similar operating betas. However, since beta is not only a measure of a company's operating risk, but also its financing risk, one must consider a company's capital structure when comparing beta across an industry. A higher levered company will have a higher financial risk, thus a higher beta, than a company with lower leverage. Therefore, in order to make a fair comparison of beta across the industry, it is important to strip out the effect of companies' leverage. (Koller et al., 2005)

The equation illustrated *below*, which has been developed Modigliani and Merton Miller have been used to unlever and relever the industry beta.

$$Beta\ Equity = Beta\ Unlevered \times (1 + \frac{D}{E})$$

Source: Own creation based on (Koller et al., 2005)

Smoothing

If no direct comparable exist or no obvious industry beta is observable, using a method called "smoothing" will improve the estimate of beta. The idea is that in the long run, beta will move towards the mean, thus beta should be adjusted towards the mean to reflect the true beta. The equation used for smoothing is illustrated below: (Blume, 1975; Koller et al., 2005)

$$Adjusted\ Beta = (0,33) + (+,67) \times RawBeta$$

Source: Own creation based on Blume, M., (1975)

Economic Value Added Model

The EVA-model is an Excess Return Approach that relies on accrual accounting data as opposed to the DCF-model that relies on cash flow data. Apart from this, they are two theoretically equivalent valuation models that should yield the same result. (Petersen & Plenborg, 2012)

According to the EVA-model, the enterprise value is determined by the initial invested capital plus the present value of all future EVA's. (Petersen & Plenborg, 2012)

$$Enterprise\ Value = Invested\ Capital + \sum_{n=1}^{\infty} \frac{EVAn}{(1 + WACC)^{\wedge}n}$$

Source: Own source based on (Petersen & Plenborg, 2012)

The EVA's are calculated as the NOPAT subtracted with the cost of invested capital (WACC × Invested Capital). Accordingly, the EVA-model shows if a company is traded above or below its book value of invested capital. As a result, the market value of a company is higher than its book value of invested capital if the present value of the EVA's is positive, and vice versa. (Petersen & Plenborg, 2012)

This model is believed to yield valuable insights in the valuation process, as it clearly illustrates how the market value of equity only can be higher than the book value of equity if the returns exceed the cost of capital.

Monte Carlo Simulation

The Monte Carlo method is a mathematical technique that assesses the risk in quantitative analysis and decision-making. It is a useful method to apply to very complex mathematical problems that may even lack an analytical solution. The method is used by professionals in a wide range of different fields such as finance, manufacturing, oil & gas and engineering and so forth, however, while the method does not provide a precise numerical solution to a problem, it does result in a statistical probability distribution of potential outcomes. (Vose, 2009)

Monte Carlo simulation performs a risk analysis by constructing models of potential results by substituting a range of uncertain values (probability distribution), for any factor that has inherent uncertainty. When applying a Monte Carlo simulation, a random picked number from the probability distribution will be used for calculation of the result. It then repeats the simulation procedure, calculating results over and over, each time using a new set of random values from the probability functions. When the simulation is finished, it has resulted in a set of potential outcomes. By dividing these outcomes according to the frequency they occur, a probability distribution can be constructed. Thus, the Monte Carlo simulation provides an estimate of distributions of possible outcome values. (Vose, 2009)

Using Monte Carlo simulation in the DCF Model

Incorporating the Monte Carlo simulation in DCF modeling could be seen as an extension of the DCF model. The purpose of this extension is to better understand and analyze the risk factors that may affect the valuation result. In this section, the procedure of a Monte Carlo simulation will be described.

Although the Monte Carlo simulation is based on the deterministic DCF-model, the model being used for simulation differs in many ways. In contrast to the standard DCF-model, the incorporated Monte Carlo simulation requires that some, or even all static values for the input variables are substituted with probability distributions. Determining the input probabilities involves choosing an appropriate probability distribution as well as the right distribution parameters (Damodoran, 2016). Making a fair estimation of the input distributions is difficult, however, using historical values, or other types of appropriate data, if available, is a good starting point. Furthermore, the use of personal expertise can be of great importance

when deciding upon the input distribution, even if usable data is available. For example, even though historical data suggests a certain distribution for the inputs, a given input variable might be known to have the characteristics of a certain distribution type (Brealey et al., 2011; Damodaran, 2016c; Titman & Martin, 2011). Since the process of finding the appropriate probability distributions can be difficult, it's important to notice that not all values need to be probabilistic in a simulated model. It is possible to conduct a simulation by only defining a number of key inputs as probability distributions, while keeping other inputs as static values (Smith, 1994).

Theoretical frameworks

PEST-Framework

The PEST-framework is a commonly used framework by practitioners when conducting research or strategic analysis. It is a strategic tool focusing on the external factors that may affect the research objective. Put into a valuation perspective, it can be used to analyze the macro-environmental factors influencing a company and its daily operations. (McGee, 2005)

The framework is categorized into four main types:

- Political factors – focus primarily on governmental decisions and its impact on the economy.
- Economic factors - include variables such as economic growth, inflation, exchange rates, interest rates and how these may affect the state of the economy.
- Sociocultural factors – highlight the potential impact that for instance culture, population growth, age distribution and health consciousness may have on the industry.
- Technological factors - focus on how changes in technology can affect the dynamics of the industry.

By analyzing each one of these factors and their potential impact on a case company, one can gain a better understanding of where and how the company should compete (Brealey et al., 2011)

Porters Five Forces

The Five Forces framework is used as a tool to gain a better understanding of the state of competition within an industry. Porter argues that there are five forces that together determine the attractiveness of an industry. The five forces are; (Porter, 2009)

- Threats of new entrants – analyzes how attractive the industry is for new entrants.
- Threats of substitutes – are there other products/services that serves similar purpose, and thereby constitute a potential threat to existing products/services?
- Bargaining power of buyers – the ability of customers to put the firm under pressure, the buyer power is high if the buyer has many options.

- Bargaining power of suppliers – the ability of suppliers to put the firm under pressure, the fewer substitutes to the product/service, the more power to the suppliers.
- Rivalry among existing firms – the intensity of competitive rivalry is usually the single largest factor contributing to high industry competiveness.

In order to succeed, a company should position it selves in the industry so it can manage the forces or even turn them in its favor. (Porter, 1979)

SWOT

The SWOT-framework is a structured planning method that can be used to determine the internal and external factors that are favorable and unfavorable for a company in order to achieve its overall goal.

- Strengths - certain characteristics of the company that creates an advantage over other
- Weaknesses - certain characteristics of the company which create a disadvantage in relation to others
- Opportunities - elements in its environment, which the company can exploit and benefit from
- Threats - elements in its environment, which oppose a potential threat to the company.

The SWOT model will be used as a final tool in the strategic analysis, in which it summarizes the finding from the PEST- and Porters Five Forces analysis.

Chapter 4 – Company Overview

History

Fabege is a Swedish property company noted on the Swedish stock exchange Nasdaq Stockholm. The main focus of the company is city district development and management of commercial properties in or close to Stockholm inner city. Fabege's premises are, as illustrated in figure 4.1, concentrated to four major areas, all located within 5 kilometers from the inner city of Stockholm. The four major areas are, Stockholm inner city, Solna Business park, Arenastaden in Solna, as well as Hammarby Sjöstad.

Figure 4.1

Source; Own creation based on (Fabege, 2016)

When the company was founded in 1946, the company was called Byggaktiebolaget O.P. Wihlborg & Son and focused solely on properties in the Malmö region in Sweden. In 1990 the company became listed on the Stockholm stock exchange under the name Wihlborgs fastigheter AB.

In 1998 the company bought Fastighets AB Storheden, a company that was led by Erik Paulsson. Consequently, he became the new CEO of the merged company, a position that he held until 2007. However, as of 2007 he's no longer the CEO of the company but instead the chairman of the board. Up to this date he is still the largest shareholder in Fabege with more than 15% of the total shares. (Fabege , 2017)

When Erik Paulson were CEO, the company acquired multiple companies, among them Fabege AB in 2004. Shortly after acquiring Fabege, the company changed direction and decided to focus exclusively on commercial properties in the Stockholm region. At the same time, Whilborg fastigheter AB changed its name to Fabege AB. All real estates in its portfolio that were located outside of Stockholm, or for other reasons were not considered to be in line with its new strategy were bunched together and listed in a new company and given to the shareholders. This new company got the old name, Whilborg fastigheter AB and still exist today.

After the big changes in 2004, the company continued to acquire properties, however, now they shifted focus towards adjacent suburbs in the greater Stockholm area. Consequently, they entered the commercial property market in Solna and Hammarby Sjöstad, which up to this date make 53% of its property portfolio. (Fabege , 2017)

Business Model and Strategy

Fabege states that their aim is to generate value through three business areas, property management, property development and transactions. Property management is considered as the company's core business in which they manage properties and generate income through rent. However, Fabege also creates value through the development of entire city districts with high growth potential. Finally, with high knowledge in the markets, Fabege aims to exploit opportunities and generate profits through acquiring and divesting properties. (Fabege, 2016)

Fabege's property portfolio consists almost exclusively of commercial properties in three major areas within the Stockholm region (Fabege, 2016). The company is among the most concentrated listed real estate companies in Sweden both regarding its geographic concentration, but also in regards to the specific property type, i.e. 98% commercial properties (Leimdörfer, 2016). Analyzing the transactions made by Fabege during last 10 years, it's obvious that the company strives to concentrate its portfolio to its three target regions.

Since 2008 the company has almost exclusively divested buildings outside these three regions, while they have kept its holdings in Stockholm inner city and Hammarby Sjöstad relatively stable and simultaneously increased its holdings in Solna. (Fabege, 2008-2016)

Part of its strategy is undeniably to sell properties and invest the realized gains into development of new properties. Fabege has during the last couple of years divested significantly more than they've acquired, meanwhile investment in new buildings, extensions and conversions have been slightly more than the divestments. In addition to this, the acquisitions in recent years have to large extent been property rights. Fabege has built a portfolio of over 600 000 sqm of property rights located in Solna and Hammarby Sjöstad. Out of these 600 000 sqm of development rights, about 300 000 sqm are approved for development. The majority of the company's development rights and new builds are located in Solna.

Fabege has been able to deliver a continuous stream of revenue from transactions over the last years, peaking 2016 by selling properties for mSEK 491 over book value, out of the total divestment volume of mSEK 2315. In 2016 however, the divestment volume was exceptional with two major buildings sold in Solna, apart from the two, Fabege hasn't sold properties in Solna since 2010. (Fabege, 2008-2016)

Fabege states that it aims exploit the property rights in Solna and Hammarby Sjöstad. Their ambition is to invest bSEK 2,5 annually in the close future, compared to the previous annual investment of bSEK 1,5-2 (Fabege, 2016). Fabege's strong balance sheet is a result of many years of continuous unrealizable changes in value of properties, in combination with a strong and profitable acquisition- and divestment activity. However, apart from its development rights, Fabege have indicated that they will gradually divest- and acquire less properties in coming years (Fabege, 2016), thus it seems reasonable that its portfolio of properties will increase to the size similar to that of previous years and thereafter stabilize.

The Fabege Share

Fabege is traded on OMX Nasdaq Large Cap Stockholm (Fabege, 2016). The graph below shows the development of the Fabege stock in comparison the Stockholm OMX 30 index. The time period displayed starts 10 years prior to the cut of date 31-03-2017. As illustrated, both Fabege and the index decreased for a period during the financial crisis in 2007 and 2008, however both Fabege and the OMX 30 index has recovered since then (The Guardian, 2011). The graph also shows how Fabege has outperformed the index over the 10-year period, and especially during the last couple of years. Fabege's stock price as of the cut of date 31-03-2017 was SEK 142,5.

Figure 4.2

Fabege Stock and OMX 30 index
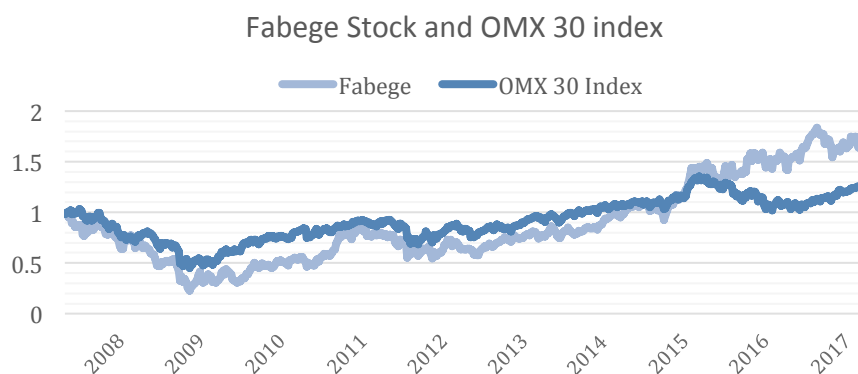
Source: Own creation based on data from (Reuters DataStream)

Ownership

Fabege has issued 165.391.572 shares in total, which are owned by slightly more than 40 000 shareholders. However, the 15 largest shareholders control approximately 44.8% of all shares. Erik Paulson (together with his family and through companies) is the largest shareholder, controlling 15,4% of all shares. Besides Erik Paulson, there is no individual owner controlling more than 5%. As illustrated in figure 4.3 and 4.4 among the investors, Swedish institutions represent 31% of the holdings while foreign institutions represent 21%. The ownership is distributed among investors from multiple different countries. Yet, Swedish investors represent the majority with 58% of all holdings (Fabege, 2016).

Figure 4.3   **Figure 4.4**

Type of investors

- Swedish institutions
- Foreign institutions
- Swedish private owners
- Other

Investors distribution by orgin

- Sweden
- USA
- UK
- Other
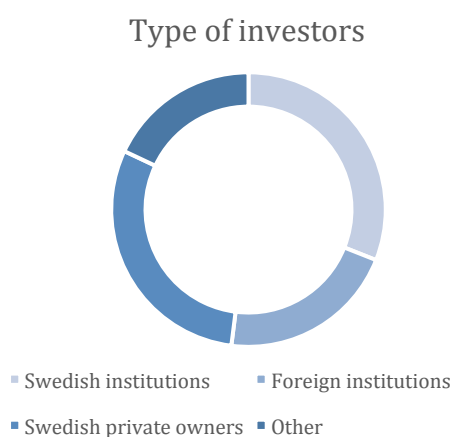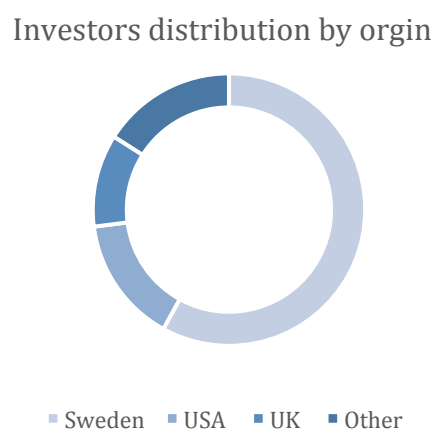
Source: Own contribution based on (Fabege, 2016)

Dividend Policy

Fabege's policy regarding dividend is that the share of the profits that are not needed to consolidate and develop the business should be distributed to the shareholders by dividend. As of 2016 the company believes that this should represent at least 50% of the profits after tax from property management and

transactions after tax during the current circumstances. (AR2016) The graph below displays the historical dividend per share.

Figure 4.5
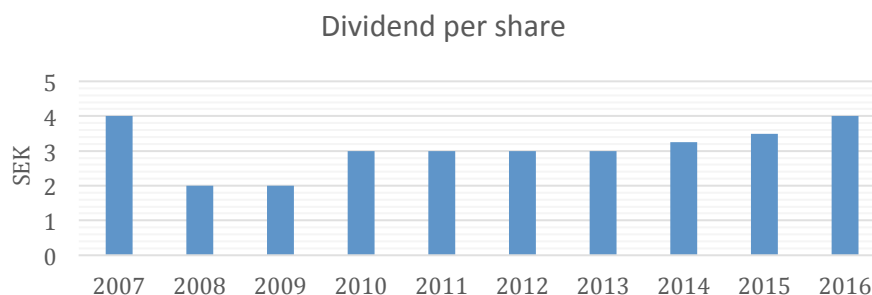
Source: Own contribution based on (Fabege, 2017)

Corporate Governance

Fabege is quoted on Nasdaq Stockholm stock exchange, consequently they have to comply with regulations that impact its corporate governance. Apart from the increased regulation that follows being a listed company, such as the Swedish rules for noted companies (Aktiebolagslagen and Bolagsordningen among more), they also have to comply with the Swedish governance code. The Swedish governance code goes beyond the standard rules for listed companies, and focus solely on improving the governance standards in Swedish companies. (Fabege, 2016)

Accordingly, companies are obliged to have their annual reports, their accountings, the work of the board and the work of the CEO reviewed by an accountant. In Fabege's case, the monitoring of its accounting standards is operated by the consultancy firm Deloitte. (Fabege, 2016)

CEO & Board of Directors

Since 2007, Chrisitan Hermelin has been the CEO of Fabege. He has been with the company since 1998 and has previous experience from other real estate companies such as Nacka strand Förvaltning AB and Fastighets AB Storheden.

Fabege's board consists of 9 members with different backgrounds. Erik Paulson, the former CEO of Fabege, has been a member of the board since 1998 and is since 2007 titled as the chairman of the board. Prior to his career in Fabege, he was managing Fastighets AB Storheden that was acquired by Wihlborg, which later switched name to Fabege. In addition to this, Erik Paulson and his brother founded PEAB, a Swedish construction and civil engineering company (Fastighetstidningen, 2016). Accordingly, having formed the basis for Fabege's current strategy in 2004, and with a long experience in real estate, construction and from managing companies, he should be considered as a highly qualified chairman for Fabege (Fabege , 2017).

Apart from Erik Paulson, Mats Qviberg is the second largest shareholder amongst the board members. Mats Qviberg is known as a successful Swedish investor with significand business experience. Moreover,

the board contains of Pär Nuder, a former Swedish Finance minister, Märta Josefsson who also is a board member of Skandia Fonder AB and Öresund Investment AB, Eva Eriksson, Anette Askelin, Svante Paulsson, son of Erik Paulsson, as well as Anna Engebretsen, daughter of Mats Qviberg. (Fabege, 2016)

The Governance Code

Since 2010, Nasdaq OMX Stockholm has no longer any rules concerning the independence of the board, however it is still included in the governance code (Swedish Coporate Governance Board, 2011). According to Fabege themselves, they have an independent board, hence they follow this code up to this day (Fabege, 2016). Worth mentioning though is that both Erik Paulson with 15,4% of the company's shares and Mats Qviberg with 2,3% of the shares, have a significant stake in the company, furthermore, they both have their children on the board, Svante Paulson and Anna Engebretsen, and are beyond this connected to a majority of the board members through different companies (Affarsvarlden, 2015; SvD, 2016). Even though it might be within the code and regulation, it can be argued that a lot of power concentrated to one or a few stakeholders will have implications on the dynamics of the board and the strategic decisions (Thomsen & Conyon, 2012).

Erik Paulson in particular, have a very strong influence in the company since he, besides the natural influence from being a chairman, has a lot of voting rights through his shares and strong connections with a majority of the board. In addition, it can be assumed that he has strong credibility from running the operations of the company as the former CEO.

Chapter 5 - Strategic analysis

This chapter provides a strategic analysis of Fabege, separated into three subchapters; an overview of the real estate market, a macro analysis and an industry analysis. The purpose is to show all the internal and external factors that influence Fabege and its business, to understand the environment in which the company operates within. For Fabege to gain a competitive advantage, the strategic analysis provides important information for how the company may position itself in relation to these factors.

At first, a thorough description of the characteristics of the real estate market and the regions Fabege operates within is conducted. It is deemed essential to understand the market in which the company operates in order to perform a valuation. Thereafter, the PEST framework is used to analyze the macro environment and its potential influence on the real estate market. Finally, the Porter five forces framework is applied when highlighting Fabege's micro economic environment. The findings are summarized in a SWOT-analysis, which will act as a foundation for the forecasting of Fabege's future performance.

Introduction to the Real Estate Market

There are numerous of different categories for real estate with somewhat different characteristics. The two major categorizations of real estate properties are residential and non-residential or commercial as they usually are called. Residential properties are single and family houses, i.e. apartments, whereas commercial properties consist of five subcategories; office, retail industrial, hotel, recreational and institutional (Brueggeman et al., 2005). Fabege's real estate portfolio consists of 98% commercial properties, 85% of those being office buildings (Fabege, 2016). However, the markets for residential and commercial properties have a strong correlation, thus they are, to various degrees, affected by the same factors (Brueggeman et al., 2005). For simplicity and to stay consistent, the focus for the rest of the strategic analysis will be on the main factors influencing real estate companies in the commercial sector.

Revenue from Property

The market value of any property (asset) is the present value of its predicted future cash flows, i.e. the expected operating profit from the building over its remaining life. However, the income potential from real estate companies depend on a lot of different factors which are interacting in a somewhat complex fashion, thus affecting the rental income in different ways. This makes it very hard to distinguish between the factors and their exact impact. Theoretically, a company's revenue is dependent on two primary factors; the price of the product/service it sells and the number of products/services sold. Accordingly, the revenue for a commercial real estate company is primarily dependent on the total lettable area of its portfolio, the level of vacancy and the rent level it charges.

However, based on previous research made by Brueggeman et al., (2005), and basic macroeconomic theory of supply and demand, it is assumed that the rental income for a real estate company focusing on commercial properties is also dependent on the continuous management of its properties, the terms of its lease contract, and the supply & demand of its properties. Each of these factors, which is illustrated in figure 5.1, will be elaborated upon in this section.

Figure 5.1
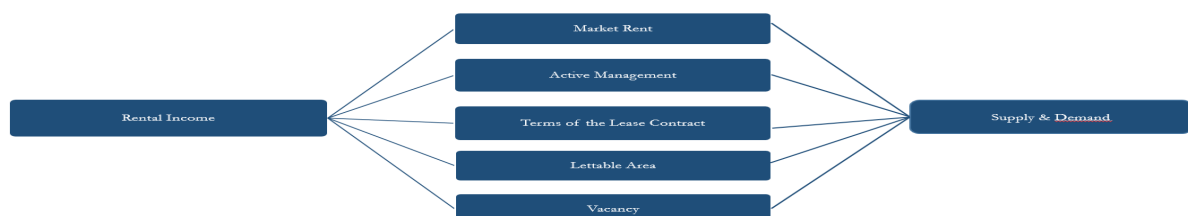
Source: Own contribution based on (Brueggeman et al., 2005)

For example, the ability to attract tenants and thereby decrease vacancy is closely connected to terms of lease contracts, continuous management, the market rent and the general supply and demand for properties.

The market rent

The market rent is arguably the most important factor when analyzing the revenue stream for a real estate company (Brueggeman, 2005). It is assumed that some of the most imperative variables influencing the market rent is;

- Supply and demand of properties in that particular area
- Outlook of the national economy (GDP)
- Inflation
- Unemployment rate
- Interest rates

Each one of these will be analyzed and elaborated upon in the PEST- and Porters Five Forces analysis, which follow this section.

The lease contract

The contract between property owner and tenants is usually based on a specific period of time, normally with duration of 3-5 years for commercial properties, and with an average of 3,6 years for Fabege (Fabege, 2016). The contracts are usually CPI adjusted every year, thus a rising inflation will increase the rent level. Moreover, the lease contract can sometimes be adjusted within the lease period, if market rents have increased above the rents received, then the contract is adjusted upwards, while the rent is kept if the market rents have decreased below (Forum I. P., 2007). However, apart from CPI adjustments, Fabege only renegotiate rent on leases when contracts expire (Fabege, 2016). The new prices for rent follow the market rent, whether it's below or above previous rent.

Supply and demand

The supply and demand for space are affected by various factors, which consequently affects investments in real estate and the market rents. It is seemingly impossible to identify all factors that may affect the supply and demand of properties, however the aim of the PEST- and Porters Five Forces analysis which follows this section, is to identify the most prominent industry- and macroeconomic factors that affect the supply and demand.

The real estate industry goes through a cycle in the same way as the general economy, illustrated in figure 5.2 (Wheaton, 1999).

Figure 5.2

The Property cycle

Oversupply ——————→ Decline
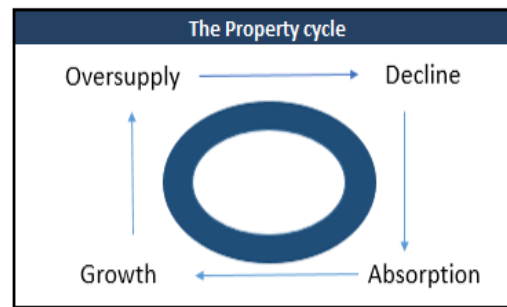
Growth ←—————— Absorption

Source: Own contribution based on Wheaton (2009)

A situation with rising market rents is usually correlated with high absorption and low vacancy of space, until the point when more space is supplied by an increase in construction. The market rents will continue to rise as long as the demand for space is bigger than the supply. When vacancy levels start rising, due to oversupply of space, the market rents will begin to decrease. The oversupply of space is therefore a direct effect of high market rents. Generally, there is a lag between strong demand and the construction of new supply. This is because firms typically make more efficient use of their existing office space instead of demanding more when the market prices for rent rise to a certain level, even though the optimal situation would be to acquire more office space. In this stage, employment is usually decreasing, which in its turn decrease the demand for office space. The new buildings that were built in the growth phase, due to high demand, are now completed, unfortunately at this point, the demand is not as high as expected and eventually the oversupply of office space leads to a decline in the real estate market and lower market rents, and so the circle continues. When market rents are low, some property companies may deliberately hold some space vacant until the market rents rises again, or they convert the space into more profitable use. (Wheaton, 2009)

Active Management

Real estate owners have the opportunity to actively manage their assets. This is done either by sustaining the value or enhancing it through a number of different alternatives. For example;

- Renegotiation of terms on current lease contracts, for example by extending the length or by increasing the rent of the contract
- Buying out existing tenants, rebuilding and refurnishing the place and then leasing it to another tenant for a higher rent
- Redeveloping the property for different use

Lettable area

The lettable area refers to the total area, which is owned by a company and available to its tenants through leasing. Thus, a larger amount of lettable area enables a company to generate higher revenues through

increased rental income. Fabege's lettable area as of 2016 is approximately 1062 million sqm.

The market rent, the lease contract, the supply and demand, total lettable area, and active management of properties all affect the potential rental income.

Having explained the terms and fundamental dynamics of the real estate industry, next step is to conduct a thorough analysis of the Swedish real estate market and the macroeconomic factors influencing it.

Real Estate Market in Sweden

There are different markets for each property type (commercial, residential), but they are to various degrees affected by the same macroeconomic factors (Brueggeman, 2005). However, given Fabege's strategic focus on one type of property, emphasis will be on the commercial property market.

The Swedish commercial property market has performed well for several years in a row with transaction volumes reaching far above SEK 100 billion annually. The total transaction volume reached new record levels in 2016, with a total of 262 transactions and SEK 185 billion invested in properties across the country. This figure was slightly above the previous record year of 2014 figures, when 297 deals were made and more than SEK 149 billion was invested in properties all across Sweden. (BNP Paribas, 2016)

According to market analysts, one of the factors contributing to the continuing high transaction volume is the low interest rate, which gives easy access to cheap financing, and a lack of other high-yielding investment alternatives (JLL, 2017; BNP Paribas, 2016).

In 2016, 35% of the total investments in Sweden were located in regional cities, although Stockholm still dominated geographically with 29% of the total investment volume. Stockholm's office market had consistently high demand throughout the year, which resulted in a 25-50% increase in prime rents in Inner City. Also adjacent suburbs experienced tremendous growth in rent levels along with decreasing vacancies that reached all-time low. The prevailing low vacancies rate has led to a number of new developments and rebuilding projects, most of these outside CBD. In recent years, the construction and development of new office space has changed and is now more focused on clusters and regions outside the Inner City of Stockholm. (JLL, 2017)

When analyzing a real estate company, one of the most important factors to consider is the location of the buildings in its portfolio. Even though Fabege only operates in the Stockholm region, there are some variations in the supply and demand for rent and space throughout the different regions (BNP Paribas, 2016). This is not only the case for Stockholm, but Sweden in general. Thus, an in-depth analysis of the three regions in Stockholm where Fabege operates will be conducted.

Stockholm Inner City

Stockholm inner city is the largest office market in the Nordic region (JLL, 2017). Reason being, a lot of companies prioritize a central location when choosing where to locate their offices. The excellent communications and high level of service in central Stockholm help companies to attract the most talented employees (Fabege, 2016). This is reflected in the strong demand for offices in Stockholm Inner City, which have made the vacancy level very low. The average vacancy rate in Stockholm inner City has decreased continuously the last five years, from 7% 2012 to 4% in 2016 (Fabege, 2016).

In the central business district (CBD) the vacancy level decreased from 4% in 2012 to 2% 2016. Since there is a very limited supply of office space in CBD and a continuous high demand, some argue that a vacancy level of 2% is the bare minimum and that it will always be some vacancy due to constant relocation and allocation of new and existing tenants between properties (JLL, 2016; Brueggeman, 2005).

In Stockholm Inner City, a further approximate of 25000 sqm is scheduled for completion in 2019, which potentially could affect the vacancy level if the demand is not increasing proportionally (JLL, 2016). However, as an indication of the strong demand, almost all of the additional 25000 sqm of office space has already been leased to companies, and is expected to be completely filled within the next year (JLL, 2017). Thus, the vacancy level is expected to remain at around 4 % in Stockholm inner City the nearest future (Fabege, 2016).

Following the rationale of decreasing vacancies, the rent has increased continuously in Stockholm Inner City since 2009, from an average of SEK 2050/sqm to SEK 4250/sqm in 2016, and from SEK 3500/sqm to SEK 6000/sqm in CBD. Although, in some cases, the rent level has reached top-levels of SEK 7500-8000/sqm in CBD.

Moreover, only during the last year the yield decreased in Inner City from 5,25% to 5%, and from 5% to 4,5% in CBD, implying that the risk of investing in these two regions is less now than it was in 2014.

Fabege is one of the largest owners of commercial property in Stockholm Inner City, with 29 properties comprising 403.000 sqm out the total 9,2 million sqm, giving them a market share of approximately 5%, which represents 47% of their total rental value, thus it's the single most important region for Fabege.

Figure 5.3   **Figure 5.4**
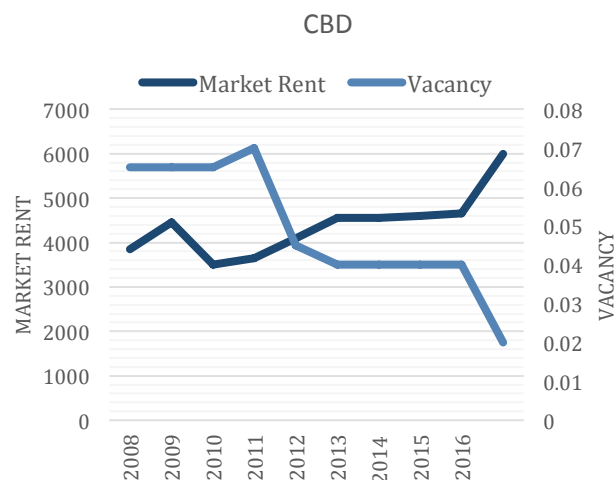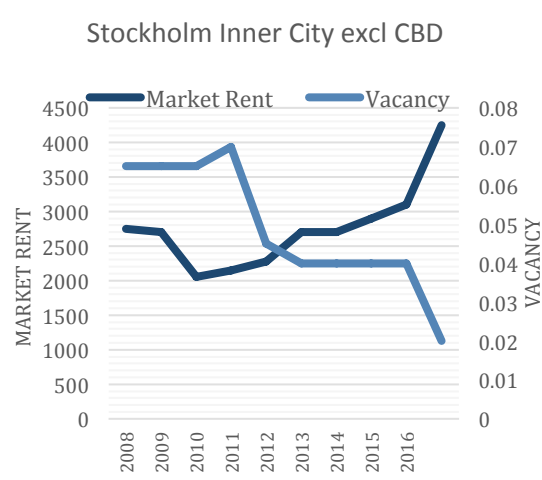
Hammarby Sjöstad

Hammarby Sjöstad has been one of the largest development districts in the greater Stockholm area during the last two decades, and it's still growing in a rapid pace. Hammarby sjöstad is a district where industrial buildings meet modern architecture. With its entrepreneurial spirit and close access to inner Stockholm, it's an attractive location for both residences and businesses. A numerous of big companies are in the process of developing office properties in the area. Fabege own 11 commercial properties with a total area of 105 000 sqm and a rental value of SEK 225 0000, making them the largest owner of commercial properties in the area. Since Fabege own 65% of the office market in Hammarby Sjöstad they are well positioned for the expected increase in demand for office space. (Fabege, 2016; JLL, 2017)

The total supply of commercial properties in Hammarby Sjöstad have increased from 120 000 sqm in 2012 to 140 000 sqm 2016, at the same time as the vacancy level has decreased from 20% to 4,5% (Fabege, 2016). This implies, that the demand has been even stronger than the increased supply. During the same period, the average rent has increased from SEK 1800/sqm – SEK 2600/sqm and the yield has decreased from 6,5% to 4,25% (Fabege, 2016).

In the following five years, Fabege will continue to develop the area both through exploitation of development rights as well as improvements of its current properties. The development is an important contribution to the establishment of Hammarby Sjöstad as the number one office location for creative companies. (Fabege, 2016).

As of now, Hammarby Sjöstad represents around 10% of Fabege's total rental value. According to Newsec (a full service property house), and Fabege themselves, the demand for office premises in Hammarby Sjöstad will be even higher in 2017 and 2018. A new construction of an office building

comprising 21 000 sqm will be ready in 2021, and already it is fully occupied. Thus, it indicates the high demand in the region, and due to the low supply of office premises, market rents are expected to rise the following years (Fabege, 2016; Newsec, 2016).

Figure 5.5

Source: Own creation based on (Fabege, 2008-2016)
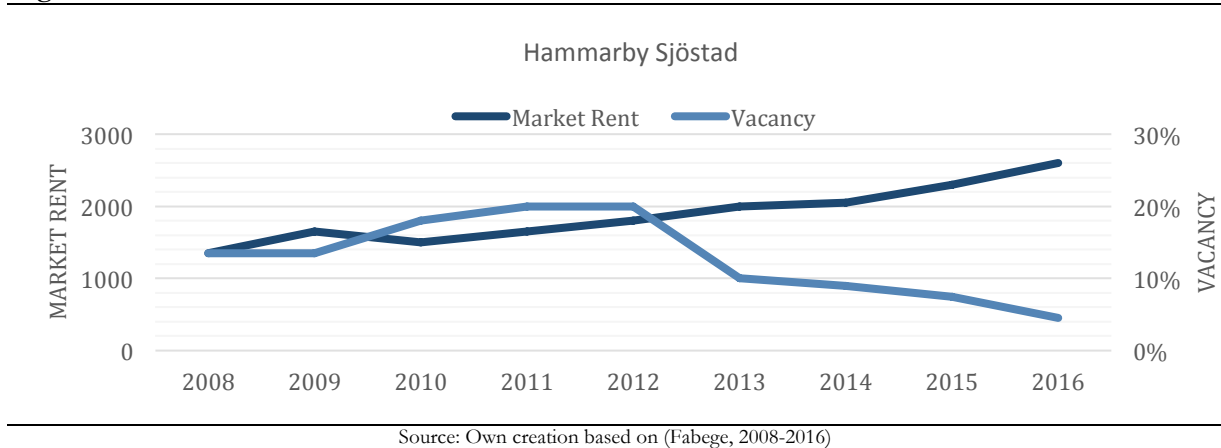
Solna

Fabege owns properties in two large areas in Solna, the first one is Solna Business Park and the second one is Arenastaden. Fabege is the largest owner of commercial properties in Solna, with over 30% of market share worth SEK 1,014m, representing 43% of Fabege's total rental value. However, Solna Business Park and Arenastaden differ somewhat in characteristics, thus they have different yields, levels of vacancy and market rents.

Solna Business Park has an energetic business climate and a strong population growth. In addition, it has excellent transport links, which makes it an attractive office market. As the largest property owner, Fabege has great opportunities to affect the city district development. As of now, Fabege is focusing on the local environment and public spaces. They are trying to make the area even greener and create more spaces for outdoor leisure activities. The idea is that companies shall see Solna Business Park as a modern and green business district, where it's easy to find a balance between work life and leisure. Many big companies, including Unilever, Coop, Evry and SBAB have decided to locate their head offices here. During the year Fabege also signed leases with BAB, ICA and Candy King. (Fabege, 2016)

The total supply of commercial properties in Solna Business Park, as of 2016, is 216 000 sqm compared to 205 000 sqm in 2012, and the market vacancy level have declined from 10% to 4%, therefore it is assumed that the increase in demand has been stronger than the increase in supply. During the same period, the average market rent has increased from SEK 2000/sqm to SEK 2550/sqm and the market yield has decreased from 6% to 5,75%. (Fabege, 2008-2016)

Fabege's vision is to make Solna Business Park one of the most attractive regions for both companies and residents. They are in the process of building an additional 180 000 sqm of new office premises as well as upgrading all of the current 144 000 sqm of office buildings.

Arenastaden

Close to Solna Business Park lays Arenastaden, which with its exclusive architecture, excellent transport links and a strong focus on sustainability, has become the hub for many major companies, including KPMG, Siemens, Carlsberg Sweden, Apoteket, Nike, Adidas, Vattenfall, Svenska Spel, the Swedish Football Association, SEB and Telia Company. All of which have decided to move significant parts of their business to Arenastaden. (Fabege, 2016)

Fabege owns more than 90% out of the total of 235 000 sqm of commercial properties in Arenastaden with an average market rent of SEK 2800/sqm and a market vacancy of 2,5%. In 2012, the average market rent was SEK 1900/sqm and the market vacancy was 2,5%, which implies that the demand has increased more than the supply also in Arenastaden. Following this logic, the yield has also decreased, from 6,25% to 5,75%. (Fabege, 2008-2016)

As of today 20000 people are working in Arenastaden, however, Fabege expects the same number to be around 30000 in 2018 (JLL, 2017). At that time, the new community train will be finished, transporting people from Arenastaden to central Stockholm within 6 minutes, also SEB and the ICA-group will move in to their new offices with start first quarter of 2018 (Fabege, 2016). Thus, it seems Arenastaden have a good growth potential the coming years.
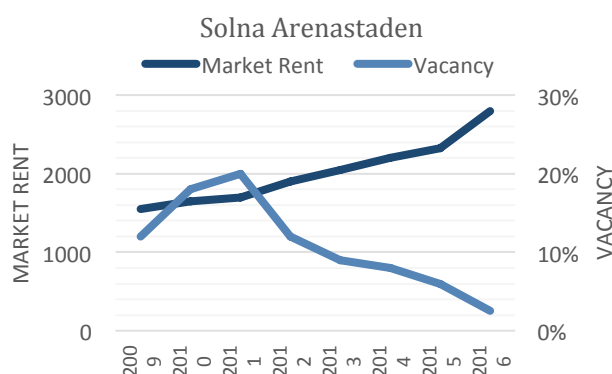
Figure 5.6   **Figure 5.7**
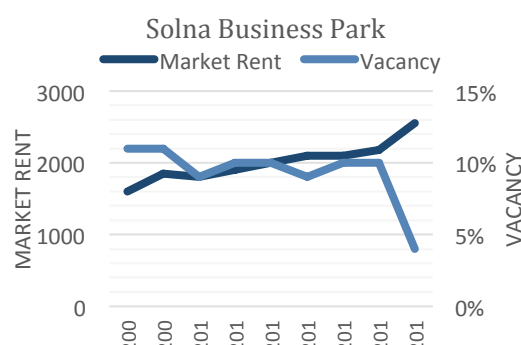
Source: Own creation based on (Fabege, 2008-2016)

In conclusion: during the last 5 years, the commercial property market in Fabege's three regions, Stockholm Inner City, Solna and Hammarby Sjöstad, have experienced decreasing vacancies and increasing market rents. The continuous strong demand for commercial properties along with a shortage in supply has fueled the rental growth, especially in areas with new and modern buildings in the

Stockholm suburbs. Moreover, the difference between these areas and Stockholm Inner City has become smaller, which is also obvious when looking at rental levels, where the gap is decreasing. According to Newsec (2006), JLL (2016), and Fabege (2016), Stockholm's property market will continue to perform well and grow even bigger. However, in order to make a fair estimate of the growth potential of the real estate market, a comprehensive analysis of the macroeconomic factors affecting it will be performed.

Pest Analysis

External environmental factors are constantly affecting the business environment surrounding Fabege, factors they can't control. These macro-economic factors influence where and how they compete, and does so on a vast amount of variables, making it necessary to analyze. The PEST framework is a useful tool that can help identify these external factors. The framework considers four main factors: political, economic, sociocultural, and technological.

Political Factors

Political factors are basically how the government intervenes in the economy. Whether it's tax policies, labor laws, environmental laws or trade restrictions, it affects the state of the economy. Since Fabege only operates in Sweden, and more specifically only in Stockholm, they are foremost affected by the political situation in Sweden. By regulating the abovementioned factors, the government has the power to increase/decrease the demand and supply on the real estate market in Sweden (Government, 2016).

A number of investigations are under way concerning changes to tax regulations. These are foremost concerning the restrictions to interest deductions and taxation of transactions in connection to the sale of properties in packages. So far, there are no concrete proposals, but are expected in late 2017 (Fabege, 2016).

Taxation of the packaging of properties

As of now, real estate companies have the possibility to sell properties through a process called "packaging" and thereby avoid taxation on potential gains. A simplified version of how it works is; instead of selling the property directly to a buyer, it's is first sold at book value to a subsidiary company. Thereafter the buyer purchases the property by buying all the stocks in the subsidiary (which only consist of one asset) at a price equal to the difference between the book- and market value. Thus the seller receives a tax-free gain on its sale of its properties, which is equal to the difference between the market value and book value of the property. (PWC, 2016)

The process of packaging could be considered a "loop-hole" in the Swedish tax system, therefore used by many real estate companies to avoid taxation on the sale of properties, hence a way to increase its profits (PWC, 2016).

If the government decides to implement the same taxation for property packaging as for direct sale of properties it would sincerely affect the profitability for real estate companies. Experts estimate that the real estate industry would be forced to pay additional taxes of roughly SEK 17 billion per year (Government, 2016; Industri, 2016)

According to Catella, one of the biggest real estate companies in Sweden, this proposition will result in higher transaction costs and less transactions. Moreover, they argue that this proposition will lead to less construction of new properties, thereby decrease the development in supply of properties. The margins for constructing and developing new properties are already slim, and by increasing the taxation less companies will be willing to invest in development projects for new properties (Industri, 2016).

Tax deduction on interest expenses

Another hot topic on the political arena is whether or not tax deductions on interests should be abolished. As of now, any interest expense, whether it's for home mortgage or other debt, is considered a deductible expense in Sweden. A deduction of 30% of interest up until 100 000 SEK, and 21% of everything over that amount is applicable (Government, 2016). The fact that the government subsidizes up to 30% of the interest bill has made it very favorable for companies and households to obtain debt. Analyzing the real estate industry, it's evident that most real estate companies have high debt/equity ratios. After all, real estate companies have a lot of assets that can act as securities when they seek funding. Since interest rates on debt have not only been low, but also deductible, it's been very attractive for real estate companies to obtain large amounts of debt.

Moreover, deduction on interest expenses has made it easier and less expensive to obtain a mortgage loan for homeownership. Thereby, the debt level in relation to the dispensable income in private households has increased 40% over the last decade, and the prognosis states that it will continue to increase in the same pace over the next ten years (Riksbanken, 2016b). Both Finansinspektionen and Riksbanken argue that the high level of debt in Swedish households is a potential threat to the Swedish economy (Riksbanken, 2016b). More critics say that tax deductions on interest has inflated prices on real estate and in order to avoid a bubble, the government must stop subsidize interest expenses (Riksbanken, 2016).

On the other hand, eliminating the mortgage interest deduction could have a huge negative impact on the real estate market. Not only would it affect the highly indebted real estate companies, but also the households. Some experts and analysts' claims that housing is the engine that drives the economy, and reducing the tax benefits of home ownership could sincerely endanger property values and the real estate market as a whole (Riksbanken, 2016). Thus, it seems fair to assume that a deduction of interest expenses would decrease real estate companies' willingness to invest in new properties.

It's difficult to estimate the exact probability of the Swedish government regulating the packaging of properties or the probability of them eliminating the interest deduction. Also it's difficult to estimate how

large impact it would have on real estate market. Worth noting, it feels unlikely that the government eliminate the tax deduction on interest costs at the same time as they impose regulation for the packaging of properties. That could potentially create disorder and panic in the real estate market. According to most of the Swedish banks and also Riksbanken, a successive reduction of the government's subsidization on interest is more likely (Industri, 2016). Thus, these are political factors to take into consideration when analyzing the future prospects of Fabege.

Economic Factors
GDP growth rate
According to Fabege themselves, their business is directly affected by the temperature of the real estate market in Sweden. Since the real estate market in Sweden have a seemingly strong correlation with the GDP growth rate, so does Fabege (Newsec, 2016).

In addition, the real estate industry has similar systematic risk as the market, and could therefore be considered as rather cyclical, i.e. Fabege is affected by the state of the economy. Thus, it's seems logical to look at the historical- and predicted GDP forecast for the coming years in order to get a broader picture of what growth that could be expected in Fabege's markets.

The global economy has a large impact on the Swedish economy, since stronger economies abroad, especially in EMDE, generally leads to higher export growth for Sweden, thus creates the conditions for improved economic development in the Swedish economy (Government, 2016b). The global GDP growth in 2016 was moderate, only 3,1%, much due to the surrounding uncertainty about the macroeconomic situation. The uncertainty is still considered high, much because of the unpredictable situation in the Euro area after Brexit, the refugee crisis, and also because of the policy stance of the new U.S. administration and its global ramifications (OECD, 2016b).

Regarding the euro area, the full effect of the referendum where the UK left the EU, still remains to be seen, and the high numbers of refugees fleeing from middle east to Europe oppose a potential risk to the economic development. (IMF, 2016)

In the U.S, some analysts fear a more inward looking and protectionist policy platform, as well as a tightening in global financial conditions, all of which increase the uncertainty (IMF, 2016). The uncertainty surrounding the U.S and the Euro area inevitably contributes to a general uncertainty in the Nordic markets, thus affecting the Swedish real estate market. The result of this could be that investors become more expectant, leading to less investment in real estate.

However, IMF projects a recovery abroad in following years. Even though the uncertainty still is high, the global growth is expected to increase from 3,1% in 2016 to 3,5% in 2017-2018 (Konjukturinstitutet, 2017). Much of this growth will be derived from emerging markets and developing economies. EMDE

expected GDP growth is 4,5% in 2017 and 4,8% in 2018 (IMF, 2016). This is a good indication since much of Swedish exports goes to these markets.

As illustrated in figure 5.8, the Swedish GDP growth has been strong relative to comparable countries and more than twice as high as the EU average during the last few years.

Figure 5.8

GDP in Selected Countries (%)							
Year	2012	2013	2014	2015	2016	2017	2018
Finland	-1,4	-0,8	-0,6	0,3	1,6	1,2	1,1
Germany	0,7	0,6	1,6	1,5	1,8	1,7	1,7
Denmark	0,2	0,9	1,7	1,6	1,1	1,7	1,6
United Kingdom	1,3	1,9	3,1	2,2	1,8	1,7	1,5
Sweden	0,1	1,2	2,7	3,8	3	2,8	2,2
EU	-0,3	0,1	1,7	2,3	1,9	1,9	1,8
Norway	2,6	1,1	1,9	1,6	0,9	1,3	1,7
USA	2,2	1,7	2,4	2,6	1,6	2,3	2,5
World	3,5	3,3	3,4	3,2	3,1	3,5	3,5

Source: Own creation based on data from (Konjukturinstitutet, 2017)

Much of this relative high growth can be explained by a positive trend in business investment and household consumption (IMF, 2016). However, as of now the resource utilization in Sweden is considered to be in balance, therefore more normal levels of GDP growth can be expected in the coming years. Moreover, higher expected interest rate and a stronger currency is expected to drive down the GDP growth rate. As seen in figure 5.9, the GDP growth in Sweden is expected to decline in coming years, but looking at a longer perspective, the average GDP CAGR has been roughly 2% (Konjukturinstitutet, 2017), thus we can expect rather normal levels of growth in coming years.

Figure 5.9

GDP Forecast Sweden										
Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Growth GDP (%)	3,8	3	2,5	2,1	1,7	1,9	2	2	1,9	2,2

Source: Own creation based on data from (Konjukturinstitutet, 2017)

Unemployment rate

The Swedish government is working hard to reach its goal of having the lowest unemployment rate in the EU by 2020 (Government, 2016c). As of now, the employment rate is the highest in EU and continues to increase. A stable GDP growth along with a high employment rate is expected to decrease the unemployment rate from 6,9% in 2016 to 6,5% in 2020, thereafter it's expected to increase slightly and reach a level between 6,7-6,8%.

Figure 5.10

| Sweden										
Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Unemployment Rate (% sSare of the Labour Force)	7,4	6,9	6,7	6,5	6,5	6,5	6,7	6,8	6,8	6,8
Employment Rate (% Share of the Population)	66,7	67,1	67,5	67,5	67,5	67,5	67,3	67,4	67,5	67,6

Source: Own contribution based on data from (Konjukturinstitutet, 2017)

The higher employment rate, the more people will be in the workforce, thus the demand for office space will most likely increase.

Inflation

The CPI level affects the commercial property market directly, since the lease contracts are usually adjusted with the CPI development each year.

Figure 5.11
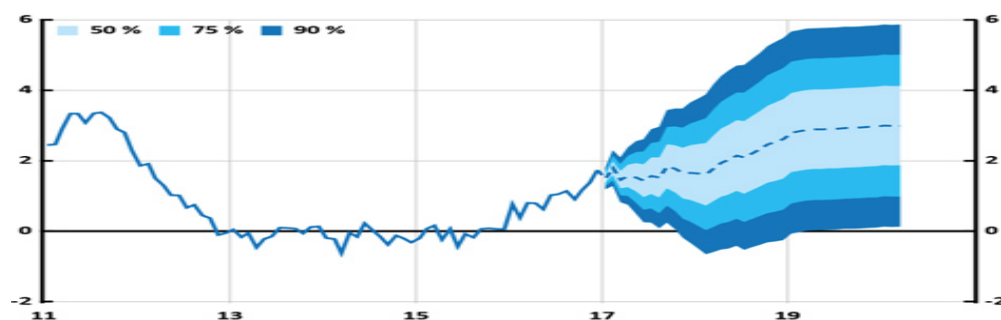
Source: (Riksbanken, 2016b)

The inflation reached the target level of 2% in February 2017 but is not expected to stabilize around 2% until mid-2018. To ensure that the inflation stabilizes around the target rate 2%, the Swedish central bank has for the last few years had an expansionary monetary policy with low interest rates. This has contributed to high GDP growth, lower unemployment rate and a rising inflation, resulting in increasing prices for properties and more transactions on the real estate market. (Riksbanken, 2016b)

Interest rate

For inflation to stabilize around 2%, a continued strong level of economic activity and a Swedish currency that does not appreciate to fast is required (Riksbanken, 2016). The idea behind low interest rates is to stimulate consumption and make it less attractive to invest money, thus increasing inflation. However, the low interest rates have also increased the economic risk in society, such as the high household indebtedness. When interest rates rise, it will naturally become more expensive for homeowners to afford their mortgages, especially for the Swedish households that are already highly indebted. Also, an investor's average initial yield on properties will increase, thus reducing the value of the properties. A fair argument to make is that this will decrease the demand for real estate, thereby push prices on properties down.

As of now, inflation is 1,7% in Sweden and according to Riksbanken themselves, they are likely to reach the target of 2% during 2017. Therefore, as illustrated in figure 5.12, the interest rate is still expected to be negative until 2019.

Figure 5.12

Year	2017	2018	2019	2020	2021	2022	2023	2024
Repo Rate, Sweden, at Period-end %	-0,50%	-0,25%	0,50%	1,50%	1,75%	2,50%	2,75%	3,00%

Source: Own creation based on data from (Riksbanken, 2016b)

According to Konjukturinstitutet, the interest rate is expected to increase at a higher pace and most likely become positive sometime during late 2018 or beginning of 2019 (Konjutkturinstitutet, 2017).

Higher interest rates will not only affect Fabege indirectly by decreasing the temperature on the property market, but also directly through higher interest costs on its loan obligations. This goes for all companies, still the property market is more capital intensive in relation to many other industries, thus functioning capital markets and access to financing from banks is of considerably significance for Fabege. Interest costs comprise Fabege's single largest cost, on average SEK 650m for the last 5 years, i.e. between 40%-50% of total net operating income (Fabege, 2016). Thus, a small increase in interest rates can have a significant impact on Fabege's result.

There is no sure way of estimating the future interest rates, however, giving the abovementioned discussion and the prognosis from Riksbanken and Konjukturinstitutet, it seems rational to think that the interest rate will increase in following years.

Sociocultural Factors

Growing population

Sweden has a rapidly growing population where more than 85% of the people live in urban areas (SCB, 2016). Stockholm is one of the five metropolitan areas in Western Europe where the population is growing the most. Today, Stockholm has approximately 1 million inhabitants, and by 2030 it's expected to have at least half a million more (SCB, 2016; Fabege, 2016)). According to Fabege themselves, the majority of this growth comes from people in the active labor force, thus resulting in a higher demand for office space. However, there is an intense competition in the Stockholm office market with a lot of property companies, institutions and private property owners that compete for the same space. At the same time, the supply of office premises in central Stockholm is scarce, with low vacancy rates and a limited potential to build more buildings. A fast growing population in Stockholm in combination with limited supply of office premises in inner Stockholm leads to a geographical expansion of the city limit to the surrounding areas. Fabege, in comparison to other real estate companies, focus primarily and almost exclusively on office space, which gives them a good knowledge of the submarkets surrounding Stockholm targeted by the company. Thus, it enables them to develop entire areas and new city districts with attractive office spaces.

Technological Factors

Technology continues to be a catalyst for change in all industries; the real estate market is no exception. Today's average worker is more mobile, connected and flexible than ever before, which means that business can operate anywhere. This is extra prominent in mature urban areas, where price for ownership and property leasing is escalating. While not all companies have adopted the idea of telecommuting, maybe because it's not viable for their areas of business, a lot of companies have utilized remote work models with great success. Thus, they are able to reduce the amount of office space needed to facilitate employees and reduce costs. Remote work models are increasingly becoming more popular, therefore changing the dynamics of what constitutes an ideal office location. Just to give an example, one of the leading health insurance companies in the U.S, Aetna has used remote work model for several years and more than 30% of their employees' telework (WEF, 2016). Through telecommuting, Aetna has managed to reduce their office space by 2 million square feet, resulting in annual saving of USD 78 million (WEF, 2016).

However, apart from telecommuting, companies are able to use new technology to cut costs and reduce office space in other ways. For instance, collaborative workplaces are also changing the commercial real estate dynamics. These shared office spaces with fewer walls, more smart boards and open work areas, are ideal for hosting meetings, as well as for both on-demand and long-term space for mobile workers and independent professionals. Collaborative workplaces can be an attractive option for companies that lack capital or want to divest themselves of the real estate, furniture, services etc., things that usually were non-negotiable. Just recently, Volvo Cars renovated its headquarter in Gothenburg so that they could make it

into a collaborative workplace, thus enabling more space for new employees, without the need to switch or buy new offices (Volvo Cars, 2015).

In addition to reducing the amount of office space needed, technology also brings potential tenants closer to real estate owners. The development of apps, social media and cloud computing has resulted in cost effective real-time property information that can be used to attract tenants to new properties. This leads to increased transparency, which means a lot of leasing activities will happen online. Therefore, technological factors enable both opportunities and potential threats for real estate companies.

Porters Five Forces

The framework consists of five forces that should be taken into consideration when determining the competition within an industry. For a company to be successful, it must first understand the industry in which it operates and thereafter position itself within it, so that it can manage the forces or even turn them in its favor (Porter, 2000). However, to do so, and to make the analysis useful for valuation purposes, the industry must first be defined.

Fabege operates within the real estate industry and its holdings are very concentrated both in regards to property type and in regards to location (Fabege, 2016). As a result, the five forces analysis will focus on commercial properties in the Stockholm region (including Solna and Hammarby Sjöstad). It is also important to make a distinction between the different types of business areas in which Fabege operates, since they differ somewhat in characteristics. The Five Forces analysis will therefore make a separation between Fabege's property management and property development. As a result, the Five Forces framework will first be discussed in general terms focusing on the overall business activities of Fabege, and thereafter be followed by a conclusion in which property management and property development is separated.

Threats of New Entrants

The threat of entry is based on new capacity entering the market, hence, the threat of losing market shares to another competitor. This threat could come from new started companies which enters the market for the first time, or from existing companies that diversify into the industry. Barriers of entry can protect existing companies in the industry by limiting the possibilities to enter and succeed for new players. Porter names six major barriers of entry to consider: economies of scale, product differentiation, capital requirements, cost disadvantages, access to distribution channels and government policy.(Porter, 1979)

Economies of scale force new competition to accept a cost disadvantage if they are not able to reach the same large scale as existing properties (Porter, 1979). As in most industries, it can be argued that there are

economies of scale in the real estate industry. In addition to this, Fabege states that their concentrated holdings allow additional scale benefits compared to more diversified holdings (Fabege, 2016). When breaking down the operating costs for Fabege, it seems like a significant amount of the cost should naturally rise and decrease along with size of the company, for example property tax. Also, it seems rational to think that administration and marketing cost can be spread over new holdings without increasing too much, which would make scale beneficiary.

Analyzing the annual report of Fabege and its closest competitors, the item c*entral administration and marketing* make up a fairly small amount in relation to the overall turnover, only 0,7% of revenues in 2016 for Fabege (Fabege, 2016). Therefore, it can be argued that the economies of scale, at the most create modest barriers of entry for property management.

Product differentiation has the potential to create customer loyalty and brand identification. Once costumers start identifying themselves with a specific product or brand it becomes harder for new entrants to win them over and gain market share (Porter, 1979). Based on the significant differences in price per sqm between geographical areas, it can be concluded that location is one of the main factors creating differentiation within the real estate industry. Regarding real estate in the inner city of Stockholm, there are multiple players competing with each other by offering office space in central locations (Leimdörfer, 2016). However, since the space for property in the inner city is limited, it can be argued that the product differentiation is not necessary between companies but rather between areas. Since the amount of properties in Stockholm Inner City is limited, it does however create a similar effect. As a result, it seems fair to argue that there are barriers of entry from product differentiation since its hard do create new areas that will compete with the inner city. However, for companies with properties located in inner city, it is difficult to create any significant product differentiation between each other.

For newly developed areas, such as Solna and Hammarby Sjöstad, the situation is different and there might be opportunities for real estate companies to stand out. Fabege holds a significant market share of commercial properties in both of these areas, thus have the potential to influence the city district development. Accordingly, they have the possibility to offer tenants something unique and different. Analyzing the annual reports of Fabege, it seems fair to argue that Fabege have been able to establish new areas with attractive characteristics, and thereby, possibly reduced the relative attractiveness of other adjacent suburbs outside inner city. The great connectivity to the inner city and the effect of business clusters have attracted many large companies to Solna and Hammarby Sjöstad in recent years. For instance KPMG, which is a significant tenant, acknowledged that it was because of the close proximity to business that they decided to move to Solna (Fabege, 2016).

It seems reasonable that a company and its employees can develop strong preferences for a geographical location and that the characteristics of an area will determine its attractiveness. Therefore, it is believed that the complexity and competence it takes to develop areas with such characteristics create barriers for new entrants.

In conclusion, there might be barriers of entry from product differentiation. However, even though they are more evident for differentiated areas, they are not necessarily high.

Capital Requirements. Capital requirements creates barriers of entry, especially if its unrecoverable expenditures and if the investments need to be done upfront (Porter, 1979). The capital requirements of entering the real estate industry might seem obvious. Still, it needs to be put into perspective. Since there are no prominent R&D costs in property management and the only major investments are the properties, it is possible to enter the commercial real estate market on a relatively small scale. On the other hand, it can be argued that it is fairly easy to exit the business since the real estate market can be considered a relatively standardized market with a lot of transactions. Property development on the other hand is riskier since the market for properties under construction is less standardized. To develop new areas such as Arenastaden and Solna Business Park, companies have to go through significant processes to get their planes approved. Furthermore, the building process requires significant investments that don't necessarily yield a return and where the future returns are less predictable. With this in mind, the barriers of entry from capital requirements are considered high for operations related to development of properties, and especially when it comes to entire city districts. For property management, the barriers are more modest, but should still be considered to cause at least some barrier of entry.

Cost Disadvantages. There are other cost advantages besides economies of scale, such as specific knowledge, properties in favorable locations or assets purchased at pre inflation prices, amongst more. Factors like this can create a cost disadvantage for new entrants, and thereby make the industry less attractive (Porter, 1979). For example, Fabege argues that their knowledge of the market is an influencing factor for their success. However, this type of competence can be acquired through different means without scale benefits or large amounts of money. Thus, barriers of entry from cost disadvantages are considered medium to low.

Access to Distribution Channels. While existing companies have developed their distribution channels, new entrants need to secure their retail or wholesale channels. The more limited the channels are, the higher the barrier of entry becomes (Porter, 1979). Office space can be lent out through brokers or administrated by the company itself. As a result, distribution channels are accessible for competitors. There are no inaccessible distribution channels that will create any barriers to entry.

However, the relationship with the decision making units within different districts, such as the city council, is important in order to get approval for city development, projects and pending development rights. It seems possible that trust and relationships will grow with successful projects and that companies that have gained a good reputation from successful projects, can benefit from it. This could be a barrier to entry for new competition. For instance, Fabege has worked closely together with the municipality of Solna city, which has contributed with significant funding for mutual interest projects, such as city development and public transportation (Fabege, 2016)

Government Policy can make industries less accessible through increased regulations (Porter, 1979). This is a factor that plays an important role within the real estate industry, especially when it comes to real estate development. The development of a new area is a long political and administrational process (Fabege, 2016).

To start with, companies need to present a report documenting that there is a strong demand for properties in the area, and also a plan for how the demand can be solved in line with the plans for the city development.

Fabege's properties are foremost located within Stockholm city and Solna, which are situated next to each other. As a result, Fabege, as well as other companies that are developing property in these areas need to cooperate and consider the development plans that these cities have outlined when proposing their projects (Fabege, 2016). After an initial proposal there will be multiple stages of planning that hopefully lead to a final proposal. To approve a development project, local authorities need to consider multiple aspects and interests, as a result of this, the outcome of what companies manage to build is usually a compromise between different interests.

In regards to city district development, there are obvious barriers of entry because of hard government policies and regulations. Property management is also affected by government policies, but to what extent this causes a barrier of entry is however not as clear. (Stockholm City, 2016). Worth noting is that the real estate market would be very different without limitations caused by the government, for better and worse.

Threat of Substitutes

Substitute products will limit the industry's potential for profits since customers will change to substitutes if the price gets too steep in relation to the perceived value. Porter mentions two types of substitute products that should be acknowledged. First, products that due to trends improve their perceived value for money. Second, products from other industries where increasing competition forces companies to find new customers. (Porter, 1979)

Technology. As mentioned earlier in the Pest analysis, the technological development has opened up for alternative ways to work and utilize space. Technology has enabled employees to be way more flexible than before which has changed the characteristics synonymous with an attractive office, since it has become increasingly more popular with remote work models. Furthermore, technology has enabled companies to cut cost by relocating support functions. Due to the progress of technology, distance has become less of a limitation and has enabled support processes and its staff to be located more or less anywhere. (JLL, 2017). Since Sweden and particularly Stockholm are characterized with expensive labor and overall high costs, it seems reasonable that corporate functions will continue to be moved abroad as technology further progresses.

Substitute Areas. Alternative areas do indeed possess a threat for companies such as Fabege. The attractiveness of suburban areas in close proximity to the city center can be related to what Porter (1979) refers to as trends that improve the perceived value for money. There are currently multiple areas under development in close proximity to the inner city of Stockholm, for example Norra Djurgårdsstaden and Hagastaden. (Stockholm City, 2016)

Figure 5.8
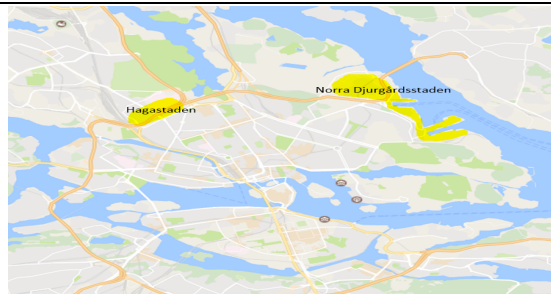
Own creation based on (Stockholm City , 2017)

Norra Djurgårdsstaden is located northeast from Stockholm inner city. When finished 2025, the area will offer approximately 35000 new places for work (approximately 600 000sqm), and 12 000 homes (Stockholm city, 2016). Furthermore, the project was awarded the C40 award 2015 for sustainable communities and has been selected for a program, which seeks to test best practice for urban sustainable development. (C40 cities , 2017)

Hagastaden on the other hand is located just northwest from the inner city, in between the inner city and Solna. When completed, the area will offer approximately 50 000 new places for work in total by 2025, 36 000 of which will belong to Solna while 14 000 is considered to belong to Stockholm inner city. In addition to this, the area will offer approximately 6000 homes. (Stockholms City, 2016). The area is expected to become a cluster for research and life science because of its close proximity to Karolinska institutet, Royal University of Technology and Stockholm University (Stockholms City, 2016). The area has much in common with the areas developed by Fabege.

Like Fabege's suburban areas, the vision is to create a dense urban district by combining offices premises with residential buildings. The vision is expected to be finalized by 2025, however, the first apartments will be ready already in 2017. (Stockholm life, 2016)

It can be argued that these areas compete with each other and with the areas developed by Fabege, in particular the suburban areas Solna and Hammarby Sjöstad, which have similar characteristics. However, with the currently high demand and the expected increase in population, along with an expected continuous shortage of supply, the risk of Fabege loosing occupancy rate due to increased popularity in substitute areas is considered small.

The inner city, and especially CBD can be assumed to have an edge since its still considered as the most attractive location for commercial properties. The high rent levels suggest that CBD is the first choice for companies and employees. Since the location of a real estate is important in that sense that it can attract and retain talent but also to maximize productivity (JLL, 2017), it seems reasonable that the demand for CBD location will remain high, especially in lucrative industries where the competition for talent is fierce. According to market reports for Stockholm, location has increased in importance when it comes to attract talented employees (JLL, 2017; Fabege, 2016)

Bargaining Power of Suppliers
Powerful suppliers are able to obtain a higher share of the profitability in an industry. This is achieved by increasing prices or lowering quality. With powerful suppliers, the industry becomes less attractive for other players. The power of suppliers can be traced to a few specific characteristics. These factors include, the different available options, uniqueness of the product, switching costs, the nature of the product, and the threat of vertical integration. (Porter, 1979)

Fabege's main suppliers consist mostly of the contractors hired to build its properties. Fabege is currently hiring multiple different contractors for its different projects such as PEAB, NCC, Veidekke, Allegro, among more. The fact that Fabege hires different contractors suggests that there is competition, which is consequently limiting the bargaining power of suppliers. The figure below shows a list of contractors hired by Fabege for current projects. As can be seen, Peab is continuously used throughout different projects, which is interesting since Peab was founded by Fabege's chairman of the board, and largest shareholder, Erik Paulsson together with his brother Mats Paulsson (Sydsvenskan, 2014). Mats Paulson and his family is still a significant owner of Peab, controlling 29% of the voting rights and 17% of the capital (PEAB, 2016). This arguably creates a bond between the two companies. Even if it's impossible to estimate the exact benefits of this relationship, it seems fair to believe that the relationship to Peab enables trust when doing business and can act as a benefit for both parties. The close relationship to one of the strong

suppliers, along with a number of other supplier options, suggests that the supplier's holds relatively low bargaining power.

Figure 5.9

Project	Contractor
Telia huset	Peab
Uarda 7	Peab
SEBs nya kontor	Veidekke entreprenad AB & Svedavia AB
Uarda 6	Peab
Signalen	NCC
Pelaren	Peab & Zengun
The Winery hotel	Veidekke & Arcona
Grand central Sundbyberg	Allegro
Project Råsunda	Peab

Source: Own creation based on (Fabege , 2017)

Besides property development, Fabege also hires contractors for services related to the more operational activities such as the letting of commercial properties. For such activities it can be argued that there is a lot of competition and a possibility for Fabege to vertically integrate. This makes the bargaining power of suppliers' low for these kinds of services (Fabege , 2017).

Bargaining Power of Buyers

Figure 5.10

The dynamics between the company and its buyers is also of importance when assessing the attractiveness of the industry. Buyers can become powerful by for instance buying large volumes. The nature of the product also matters, if the product is standardized there are likely different sources to buy from which creates leverage for the buyer. Other factors that matter include the profitability for the buyer, the quality of the product, the threat of buyers vertically integrating backwards, and also the product's potential to save costs for the buyer. (Porter, 1979)

15 Largest tenants
Vattenfall
Skatteverket
Ica Fastigheter Sverige
Carnegie Investment Bank
Evry
Coop
Svea Ekonomi
PEAB
Bilia
Svensak Spel
LRF
Cybergymnasiet Nacka
Migrationsverket
Max Mattissen
Hotel Kung Carl

based on contract value
(Fabege, 2015)

The 15 largest tenants represent 28% of the total contracted rental value. This indicates that there are multiple tenants with high importance for Fabege, however none which by themselves will threaten their business. Tenants are likely to have high switching costs since moving office is both time consuming and associated with high costs. In addition to this, switching offices can cause opinion among employees, which might have negative implications for the company. Assuming high switching costs for tenants, Fabege will have to offer an attractive value proposition to attract new companies, which is difficult.

It is fair to assume that there are relatively high switching costs for Fabege as well. First of all, it requires efforts to find new tenants. Second, there is a risk for increased vacancy when replacing tenants. As a result, Fabege aims to secure long term profitability by renegotiating the length of its lease contracts in its

development projects, especially in Solna (Fabege, 2016). This in its turn increases the bargaining power for buyers as they sign up for a longer period of time, i.e. they want to be compensated for the risk. In summary, with high switching cost from both parties, there will likely be a mutual interest to prolong contracts.

Industry Rivalry

Rivalry among existing firms usually concerns price, products and advertising. Intense competition among existing firms will make the market less attractive for new entrants, thus highly competitive markets tend to have only a few significant actors. First of all, in markets with intense competition, there are often multiple competing firms of similar size. Furthermore, fierce competition is usually seen in markets with slow growth. This is because the market is not expanding, so firms are only able to obtain a larger market share by stealing it from a competitor, thus it becomes a zero sum game. (Porter, 1979)

It's also common with low differentiation, low switching costs and high fixed costs in competitive industries. In addition to this, competition seems to increase when capacity is increasing and when there are high exit barriers. (Porter, 1979)

Competitors. There is a significant amount of players in the real estate industry. According to Leimdörfers market report 2016 of the real estate industry, the listed companies in the real estate sector make up for 4,5% of the total stock market capitalization in Sweden. This share has more than doubled during the last 20 years (Leimdörfer, 2016). However, if only considering commercial real estate in Stockholm, the situation looks slightly different. Compared to other listed companies in the industry, Fabege is very specialized and has created its own niche. All of Fabege's properties are located in or around the Stockholm region. In addition, Fabege's business is very concentrated to a specific segment, commercial properties. Accordingly, the amount of competitors becomes fewer. Among the publicly traded companies in Sweden, Hufvudstaden is the only company with more than 50% of its value concentrated to offices in the Stockholm area. However, even though there are only a few noted companies with the same niche as Fabege, there are still a lot of competitors. For instance, Fabege have only a 5% market share of commercial real estate in Stockholm inner city, indicating that competitors make up for the other 95% (Fabege, 2016).

On the other hand, it is believed that the amount of available space has a larger impact on rent levels rather than who own the properties or how many competitors that exist in the market.

A lot of competitors do not necessarily imply that the market is very competitive. To understand the competitiveness of the market, the focus should rather be on the amount of new supply of properties that will enter the market and the predicted demand for commercial properties.

As mentioned before, occupancy rates are high in Stockholm in general, as well as for Fabege's properties. However, Fabege's occupancy rate and rent level has continuously been slightly lower than the market

(Fabege, 2016). This is because many of its properties have been under development in recent years, which have resulted in a lot of tenant adaptations (Fabege, 2016). Since it can be time consuming to find a good match for the new space, the level of vacancy may increase as a consequence.

Price. The price a company is able to charge for office space is often highly related to the location of the property. High demand and limited supply during the last couple of years has caused higher prices and lower vacancy in all of the areas where Fabege's operates. The highest market rents are found within the central business districts in the inner city of Stockholm, this is also the area with the lowest vacancy rates (Fabege, 2016). With vacancy rates of 2 % in CBD, 4 % in the inner city, 4% in Solna business park, 2,5% in Arenastaden and finally 4,5% Hammarby sjöstad, it can be argued that the demand is high in relation to the supply, which is favorable for real estate lenders (Fabege, 2016).

Given the high demand for commercial properties in the Stockholm region along with the current characteristics of the market, it seems unnecessary to compete with a low price strategy, especially since the risk of not having its properties vacated already is considered low. Thus, as long as demand is higher than the supply, real estate companies can arguably charge higher rents. From this perspective, the competition caused by price seems low.

In summary, there is significant amount of competitors, however the current high demand and limited supply of commercial properties makes the industry rivalry low or at the most medium.

Conclusion

In order to further stretch the difference between property management and property development, the five forces analysis will be concluded separately for the two. By dividing the conclusion into two sections, it is believed to give a more accurate picture of the competition Fabege is exposed to.

Figure 5.11

Property management.

- *Treat of new entrants – low*
- *Threat of substitutes – medium*
- *Bargaining power supplier – low*
- *Bargaining power buyer – medium*
- *Industry rivalry – medium - low*
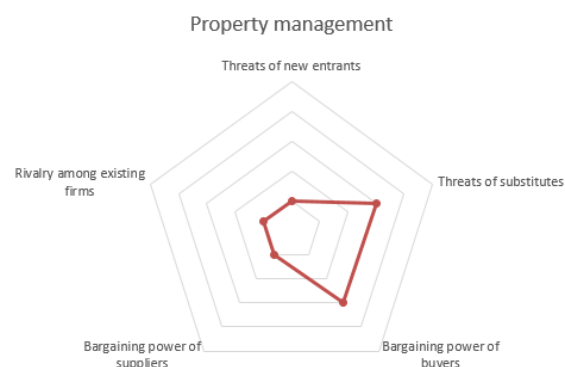
Source: Own creation

Property Management

Under the existing circumstances with limited supply and high demand, the market can be considered attractive. New entrants are limited by the scarce supply of available properties, which makes it difficult to find available premises in central locations. Attempts to enter the market will only increase the demand for properties, consequently lowering the yields and increasing the market value of existing properties. As a result, existing companies become even more profitable.

The threat of substitutes consists primarily of technological changes and new areas under development, both of which have the potential to decrease the demand for commercial properties in Fabege's regions. However, due to the expected strong demand and shortage of supply, neither of these threats seem to be high enough to threaten the industry. Worth noting, this might however change over a long time horizon.

The bargaining power of suppliers is low for property management, since there are plenty of options for services related to property management, and this kind of services could be vertically integrated if needed. Meanwhile, the bargaining power of buyers is considered to be medium since there are high switching costs for both tenants and property lenders.

Finally, industry rivalry is also considered to be medium since there are multiple companies offering similar properties, however it is believed that low-cost strategies is relatively inefficient since there already is a strong demand for commercial properties. All in all, the industry is considered attractive for existing companies when it comes to managing and capitalizing on existing real estate, it is however harder to expand the business.

With a significant share of prime real estate, which is associated to very high demand and limited supply, as well as two areas in Solna with high growth potential as they are on the verge to create clusters for business, Fabege seems to be well positioned to capitalize on its holdings.

Yet, it needs to be acknowledged that the attractiveness is to a significant extent due to the strong demand and factors limiting new supply. This can change for the better or worse, which in its turn would affect the attractiveness of the industry.

Figure 5.12

Property development.

- *Treat of new entrants – low*

- *Threat of substitutes – Medium - High*

- *Bargaining power supplier – Medium*

- *Bargaining power buyer – Medium - High*

- *Industry rivalry –Medium to low*
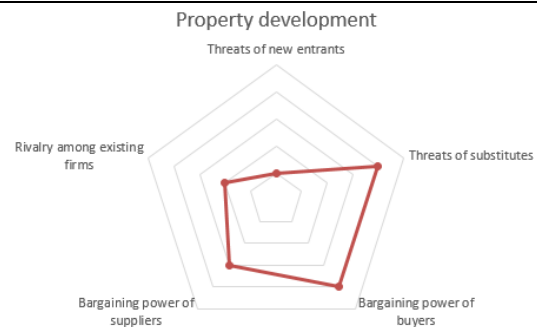
Source: Own creation

Property Development

The long processes to get development rights approved, high capital requirements and the importance of specific knowledge of the markets make it hard for new entrants to compete. This makes the threat of new entrants' low. There is however a few areas under development that can be compared Fabege's projects. It is essential that Fabege's target regions Solna and Hammarby Sjöstad stay attractive in comparison to these upcoming adjacent suburbs; hence the threat of substitutes is significant. Bargaining power of suppliers is considered medium since there are multiple suppliers to choose between, but not so many real estate companies. Bargaining power of buyers are however significant, since a lot of the potential tenants are established companies with current offices elsewhere. The costs of switching offices will make companies reluctant to change, which makes it important to offer appealing value propositions in order to attract new tenants to newly developed areas, such as Solna and Hammarby Sjöstad. In order to reduce the risk associated with development projects, Fabege aims to secure future cash flow streams by increasing the length of its lease contracts, which as a consequence give more bargaining power to the buyers, as they require compensation for its long-term commitment. Finally, the industry rivalry is considered medium to low thanks to high demand and multiple factors limiting the supply. All in all, the market for property development does not seem as attractive as property management since the risk for substitutes and the bargaining power of buyers is high. Property development does however make it possible for Fabege to expand its business. The large amount of property development rights in close proximity to the upcoming areas in Solna and Hammarby Sjöstad suggests that Fabege is well positioned given the market characteristics.

SWOT - Analysis

The purpose of the SWOT analysis is to sum up the major findings from the real estate market overview, the macro analysis (PEST) and the industry analysis (Porters Five Forces), all from Fabege's perspective. The strengths and weaknesses focus on internal factors while opportunities and threats represent the external factors influencing the company.

Strengths

- Fabege's concentrated holdings make them well positioned to capitalize on the predicted high demand for offices in Stockholm.
- Development rights in close proximity to Solna businesspark and Arenastaden enables Fabege to hold the option to expand successively without taking on too much risk.
- The attractive location together with great communication make the holdings in Solna deemed to become more attractive. Limited options to expand Stockholm inner city together with strong growth in population opt for increased popularity for well-constructed suburban areas with good communications.
- Fabege has been able to attract well-established tenants to its properties located in Solna, which in its turn help them attract new tenants, much like the effect of clusters.
- Experienced and close-connected management team with a proven record of successfully managing property portfolios

Weaknesses

- New tenants possess a relatively strong bargaining power for new constructions; Fabege has to deliver attractive value propositions in order to attract customers to Solna.
- Highly dependent on the future development of Solna which could be considered risky. To secure profitability, Fabege seeks to sign a lot of long-term contracts, which gives bargaining power to the buyers.
- Dependent on a few major tenants, which increase the concentration risk, however these are creditworthy companies.

Opportunities

- The market outlook represents a major opportunity for both Fabege and its peers. Experts predict increasing rent levels and lower vacancy, which is favorable for the industry.
- Yields are expected to decrease, which will increase the value of Fabege's property portfolio, thus, boost its balance sheet.
- Stockholm is predicted to grow at a higher pace than the rest of Sweden with a steep growth in population. The population in Stockholm is expected to grow approximately 50% until 2030.

- High barriers of entry for property development, first and foremost from government regulation. This keeps the supply relatively stable.

Threats

- Two major areas in close proximity to the inner city of Stockholm (Hagastaden and Norra Djurgårdsstaden) are currently under development, which could become substitute areas for two of Fabege's target regions, Solna and Hammarby Sjöstad.

- The real estate industry has historically been cyclical. A combination of increased development of properties followed by a demand lower than projected, could upset the industry.

- Increased governmental regulation, such as changes in tax deductions and stricter laws related to sale of properties through packaging, could limit the amount of transactions, and thereby cool down the market.

- Since the real estate industry is considered to be cyclical, it moves along with the Swedish economy. Accordingly, changes in macroeconomic trends could potentially cool down the real estate industry, which would imply stagnating rent levels and higher vacancies. Also, a weaker property market could limit the ability to develop new properties as a result of weaker balance sheets among real estate companies.

- Interest rates are currently at a record low level, and are according to many experts and analysts, including the Swedish central bank, expected to increase in coming years, which would increase the financial costs significantly due to Fabege's high DTV-ratio.

- Technological changes enable companies to move certain functions and operations abroad where labor is cheaper and costs in general are lower. Thus lowering demand for offices in Sweden.

Chapter 6 - Financial Statement Analysis

In order to make an accurate forecast for a company's future, it's important to understand its past. Therefore, the process of analyzing Fabege starts with an analysis of its historical performance. It is believed that 9 years of historical data should be sufficient enough to capture trend lines in a company's financial statements and thereby make a better prediction for its future (Koller et al., 2005)

The main focus of this chapter is to derive the key value drivers NOPLAT, invested capital and ROIC for Fabege and its peer group companies. A comparative analysis of the firms will be made in order to further strengthen the underlying assumptions in the forecasting section and the following valuation of Fabege. Emphasis will be on the interpreting the main ratios and the value drivers behind their components.

Since the original financial statements are not designed for valuation purposes, a rearrangement of the accounting statements is necessary in order to obtain an analytical format of the income statement and balance sheet. Ideally, the financial statements should reflect economic, instead of accounting performance. This is achieved by categorizing the various items as being operational or non-operational (financial). (Koller et al., 2005)

At first, the income statement is adjusted and all items are separated into being operational or non-operational (financial). Thus, the net operating profit less adjusted taxes (NOPLAT) can be calculated.

Thereafter, the balance sheet is reformulated and Fabege's invested capital is estimated. Doing so, it's possible to derive Fabege's return on invested capital (ROIC) and economic profitability. By analyzing these ratios, the company's ability to create value is measured.

Having calculated Fabege's NOPLAT and invested capital, the free cash flow can be derived. The estimated free cash flows will act as foundation in the following forecasting section and the final valuation of Fabege.

Accounting Adjustments in Financial Statements

In order to conduct a comprehensible and accurate comparison between Fabege and its peers, a few adjustments and corrections in its financial statements are deemed necessary. Also, in doing so, it is believed that the reorganized financial statements will better illustrate the difference between the operational- and non-operational activities of the company, thus make it easier to analyze. The adjustments are foremost related to reclassification of different line items, as well as corrections on investment properties, depreciation, cash and cash equivalents, provisions, tax liabilities as well as deferred tax liabilities. Corrections are made only where it's deemed relevant, hence the financial statements of the peer group companies don't necessary include the same corrections as for Fabege. In some cases, even though no correction has been made, a discussion concerning a specific item is provided to illustrate the

assumptions behind the categorization.

Investment Properties

Independent auditors revalue the value of investment properties each quarter; hence, any potential gain/loss in property value is documented in the income statement as increased earnings (Fabege, 2016). Since investment properties is considered an operating asset, but the item *Unrealized Changes in Value of Investment Properties* in the income statement is considered as non-operational, a correction is deemed necessary. The adjustment is to exclude the effect from unrealized changes in value of investment properties in both the NOPLAT- and invested capital calculations.

This is because last year's gain/loss in the income statement affects the next year's value in investment properties. The potential gain/loss would otherwise over/under state next year's investment properties compared to previous year, thus affecting the ROIC. Therefore, the accumulated gain/loss of investment properties is subtracted from both the asset side (*Investment properties*) and the debt/equity side (*Retained earnings*) as well as (*Deferred Tax Liabilities*), when calculating the adjusted total value of investment properties.

Figure 6.1

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Investment Properties	1545	310	-843	-1093	-1409	-739	-1339	-3252	-7614
Retained Earnings	1112	228	-621	-806	-1038	-576	-1044	-2537	-5939
Deferred Tax Liabilities	433	82	-222	-287	-371	-163	-295	-715	-1675

Source: Own creation based on (Fabege, 2008-2016)

Adjusting the value of investment properties will better reflect the operational value of these assets and also make it easier to compare the historical ROIC with that of other companies in the industry.

Depreciation

Since investment properties are not depreciable (IFRS, 2013), most of Fabege's fixed assets are not subjected to depreciation. The only item that is depreciable is Fabege's inventories, however, given the nature of the real estate industry, inventories and other PPE remain a relative small fraction of the overall balance sheet (0,004% of total assets for Fabege. Accordingly, small changes in depreciation of inventories will have a minimal impact on the overall valuation. Therefore, depreciation costs have not been taken into consideration when analyzing the financials of Fabege and its peers.

Cash and Cash Equivalents

Cash and cash equivalents are generally seen as excess cash, which in reality can be used to repay debt, to buy back own share or be paid out as dividends without affecting the company's underlying operations (Koller et al., 2005). However, some of the reported cash and cash equivalents may in fact be needed in the daily operations, thus it's important to separate operating cash with excess cash. Since excess cash will

earn a rather small return, due to the low risk and high liquidity, it will incorrectly depress the company's return on invested capital if included in operating cash. Cash and cash equivalent reported in companies' balance sheets does not distinguish between operating cash and excess cash, hence, one must assume a proxy for the amount of working (operating) cash.

According to Koller et al., (2005), an analysis of the cash holdings of S&P 500 non-financial companies showed that the average holding of cash was just below 2% of sales. Using 2% of sales, as a proxy for operating cash is further justified by the research made by Elling & Sørensen (2005). Since there is no indication that Fabege's working cash would be lower or higher than this amount, it has been considered as a good estimate.

The same correction as illustrated in figure below (dividing the item *Cash and Cash Equivalents* into two new items; Working *Cash* and *Excess Cash),* have also been made for Fabege's peer companies.

Figure 6.2

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cash and Cash Equivalents	-54	-173	-73	-74	-200	-98	-23	-32	-62
Working Cash	44	44	40	36	37	41	42	40	42
Excess Cash	10	129	33	38	163	57	-19	-8	20

Source: Own creation based on (Fabege, 2008-2016)

Tax Liabilities

Looking at historical data of Fabege's tax liabilities, it can be concluded that each year's tax liability amounts to a sum between SEK 5-20 million, except for two years (2012, 2013), where the amount was SEK 1900 million and SEK 1560 million. This was because The Administrative Court of Appeal issued rulings in a number of Fabege's tax cases, thus significantly increased the taxation for Fabege. The rulings concerned a number of properties sold through limited partnership between Fabege and the former company Tornet (the old Fabege and the old Wihlborg's) during the years 2003-2005. The issue can be traced back to the reporting of tax, and how the taxable profit was not accurately calculated. Comparing the tax liabilities of Fabege with that of similar peer group companies Hufvudstaden and Castellum, it's possible to deem these high tax liabilities as exceptions, since they cannot be found elsewhere in the industry. Therefore, the high tax liabilities of 2012 and 2013 have been excluded when calculating the free cash flow. Arguably, this will better reflect the normal cost structure of Fabege, assuming no similar litigations in the future.

Deferred Taxes

Deferred tax refers to the tax differences that arise between the taxable income and accounting earnings (Koller et al., 2005). These differences between tax laws and accounting methods can lead to a divergence in the amount of payable tax by the company. In Fabege's case, deferred taxes stem primary from

unrealized gains on investment properties that accumulate tax-free until they take constructive receipt of the gain. Fabege postpone their tax payments on capital gains to future years, in case profitability decrease so that they can smooth tax on earnings with losses, thus reducing the company's tax expense.

Since unrealized gains in value of investment properties is classified as non-operational, so is the deferred taxes related to this item. The adjustment made is to deduct 22% (current tax rate) of the amount related to the unrealized gains in investment properties from the deferred tax liabilities.

Figure 6.3

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Deferred Tax Liabilities	0	0	152	390	588	923	918	1786	3271
Accumulated Deffered tax	433	514	292	5	-366	-528	-823	-1538	-3213
Adjusted Deferred Tax Liabilities	433	514	444	395	222	395	95	248	58

Source: Own creation based on (Fabege, 2008-2016)

The correction is made in order to ensure consistency with the calculated invested capital and NOPLAT. Analyzing the annual reports, the remaining deferred tax liabilities are assumed to be related to profits from derivatives (Fabege, 2016).

Analytical Income Statement

Adjusting the income statement enables the calculation of the Net Operating Profit Less Adjusted Taxes (NOPLAT). NOPLAT is a financial metric that is used to calculate a company's operational profitability regardless of how it's been financed. In order to calculate the operational profitability, one must start by identifying the different revenue streams from operations. By analyzing the income statement for real estate companies focusing on commercial properties, it can be concluded that revenue stem from four primary sources:

- Rental income from properties
- Realized changes in value of properties
- Unrealized changes in value of properties
- Unrealized changes in value of financial instruments

However, it's not obvious that all four of these revenue streams should be considered as operational. Therefore, the following section will be used for a discussion on which revenue streams that should be deemed operational and not.

Operating Income

Operating Income is revenue generated from a company's daily business activities, which means revenue received from selling the company's product and services. The revenue from unrealized changes in values

of properties is a non-cash income/expense, and the management's ability to influence this item is considered small, since it's foremost market factors such as the market yield that affect the fair value of the property portfolio. One can argue that management have the power to influence the gain in value of properties by choosing locations with good growth potential, however, it does not make Fabege any different from the other big real estate companies in Stockholm, which have had similar increase in property values as Fabege (Hufvudstaden, 2016; Wallenstam, 2016; Plazer, 2016). Thus, it's hard to pinpoint the effect that managements capabilities have on the increase in value of properties. If these gains/losses were to be treated as operational, they would have a significant impact on the operating profit for the region. It is argued, by excluding unrealized changes in value of properties from both the NOPLAT and invested capital calculations, it's possible to get a better picture of how the company is managing its daily-business activities, which is the letting and selling of commercial properties.

According to analysts in Scandinavian and European investment banks, it makes more sense to exclude the unrealized changes in value of properties from the operational activities. (Handelsbanken, 2016; Pareto, 2016)

The unrealized changes in value of financial instruments is considered as a non-operational item, since it's stated clearly that it has to do with the financing activities of the company.

The realized gains/losses from sale of investment properties, on the other hand, have been classified as operational. A part of Fabege's core strategy is to divest and acquire properties with the aim of increasing potential in the property portfolio (Fabege, 2016), thus it seems reasonable to classify this item as operational. In addition, Fabege has acquired and divested properties continuously throughout the historical period of 9 years (Fabege, 2008-2016).

It is possible to argue that management can use these gains to smooth earnings in bad times by selling properties. However, since the sale of properties is an occurring event, it is believed to be part of Fabege's core operations and will therefore be treated as such.

In summary, only rental income and the realized gain from sale of properties is treated as operational revenue streams, thus, they will be included in the calculation of NOPLAT.

NOPLAT

To be able to calculate free cash flows, the official income statement must be reformulated so that it only shows operating profit less adjusted taxes (NOPLAT). This is calculated by taking Earnings Before Interest and Taxes (EBIT), less adjusted taxes. NOPLAT is the profit available to all investors, both equity- and debt holders, whereas net income of the profit is only available to equity holders (Petersen & Plenborg, 2012)

When calculating tax, it is important to only include taxes that relate to operating activities, and not include taxes related to non-operating income and expenses. NOPLAT is focused on only operational activities; therefore, the effect of interest expense and non-operating income must be removed from taxes. To do so, one must start with the reported taxes, add back the tax shield caused by interest expense and remove taxes paid on non-operating income. As illustrated in the figure below, the resulting operating taxes should equal the hypothetical tax rate that would be reported by an all-equity, pure operating firm (Petersen & Plenborg, 2012).

Figure 6.4

Tax Calculations									
Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Swedish coporate tax rate	28%	26,3%	26,3%	26,3%	26,3%	22%	22%	22%	22%
Tax on profit for the year	829	-255	-232	-276	-2120	-462	-129	-1001	-1573
Tax shield interest expense	-234,92	-149,91	-139,13	-163,85	-175,68	-161,7	-151,58	-134,86	-126,28
Tax shield interest income	5,88	1,052	0,526	0,263	0,263	0,66	0,44	0,22	0,22
Tax shield share in profit / loss in associated companies	-2,24	-1,315	4,734	2,367	36,031	-6,6	-15,84	-20,68	-93,5
Tax shield from other secureties	4,48	1,578	1,315	3,419	6,049	5,94	5,06	6,6	5,72
Tax on non operationg income									
Unrealized Changes in Value, Investment Properties	-432,6	-81,53	221,709	287,459	370,567	162,58	294,58	715,44	1675,08
Unrealised changes in value, fixed income derivatives	-135,8	25,774	27,878	-104,41	-49,97	89,76	-104,06	57,64	21,78
Change value equity	-5,88	-0,789	-10,257	-4,208	-12,361	21,12	4,18	2,2	1,1
Tax operations	27,92	-460,14	-125,22	-254,96	-1945	-350,24	-96,22	-374,44	-88,88
Decrease/Increase in deferred taxes	-580	0	152	238	198	335	-5	868	1485

Source: Own creation based on data from (Fabege, 2016)

Analytical Balance Sheet

Invested Capital

When reformulating the balance sheet, it's important to match the items in the balance sheet with the related items in the analytical income statement and NOPLAT. The purpose of dividing operating items from financing items is to determine the company's "Invested Capital" and how it's financed, either through equity or debt (Petersen & Plenborg, 2012). As illustrated below, the invested capital can be calculated as the sum of operating assets minus operating liabilities, or as the sum of equity and net interest bearing debt (Petersen & Plenborg, 2012).

Figure 6.5

Historical Invested Capital (mSEK)									
Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Trade receivables	42	19	18	15	30	16	12	13	14
Other receivables	149	136	65	98	183	48	196	92	0
Prepaid expenses and accrued income	49	58	49	48	49	58	56	66	136
Short-term investment	0	0	0	0	0	0	34	70	114
Working cash	44	44	40	36	37	41	42	40	42
Other receivables related to sale of properties	148	491	1372	201	212	243	1595	273	1537
Operating current assets	432	748	1544	398	511	406	1935	554	1843
Trade payables	91	89	82	151	176	147	58	328	104
Tax liabilities	25	10	6	17	0	3	5	3	86
Provisions	146	83	80	47	23	25	11	5	1
Other liabilities	92	245	97	181	107	76	114	160	436
Accrued expenses and deferred income	464	458	466	468	493	526	503	501	572
Operating non-interest bearing debt	818	885	731	864	799	777	691	997	1199
Operating working capital	-386	-137	813	-466	-288	-371	1244	-443	644
Net PPE	3	2	3	1	1	1	1	1	2
Net investment properties	31056	31048	27981	29069	30146	31155	28991	33459	33408
Other operating assets (net of operating liabilities)	-298	-264	-153	-41	37	-96	137	136	46
Invested Capital	30375	30649	28644	28563	29896	30689	30373	33153	34100
Interests in associated companies	21	307	443	591	810	778	630	217	106
Receivables from associated companies	59	0	81	261	248	413	335	421	138
Other long-term securities holdings	82	122	152	165	183	353	285	7	12
Deferred tax	244	99	0	0	0	0	0	0	0
Excess cash	10	129	33	38	163	57	-19	-8	20
Non-operating assets	416	657	709	1055	1404	1601	1231	637	276
Total funds invested	30791	31306	29353	29618	31300	32290	31604	33790	34376

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Liabilities to credit institutions	17925	16254	10828	13521	11385	16830	12480	14009	14520
Short-term liabilities to credit institutions	930	2855	5818	3234	6650	2208	7071	7059	7458
Convertible debentures	47	0	0	0	0	0	0	0	0
Derivatives	471	373	267	664	854	447	920	658	559
Deferred tax liabilities	433	514	444	395	222	395	95	248	58
Tax liability attributed to tax case	0	0	0	0	1909	1560	0	0	0
Other non-current liabilities	0	0	0	0	0	0	0	619	0
Debt and debt equivalents	19806	19996	17357	17814	21020	21440	20566	22593	22595
Total shareholders' equity	5096	5096	5097	5097	5097	5097	5097	5097	5097
Other contributed capital	3017	3017	3017	3017	3017	3017	3017	3017	3017
Retained earnings	2872	3197	3882	3690	2166	2736	2924	3084	3667
Equity and equity equivalents	10985	11310	11996	11804	10280	10850	11038	11198	11781
Total funds invested	30791	31306	29353	29618	31300	32290	31604	33790	34376

Source: Own creation based on (Fabege, 2016)

In order to make a fair assessment of the company's invested capital, it seems relevant to conduct a further discussion on which items in the balance sheet that should be classified as operational or financial.

Operating Assets

Current Assets

- Trade receivables; Refers to all the outstanding invoices the company has, or is owed by the company's customers.

- Other receivables; Consists of current receivables to associated companies as well as current receivables regarding unsettled purchase considerations of the sale of properties. For simplicity, this item has been separated into two items on the balance sheet; *Other receivables* and *Other receivables related to sale of properties*, which both are considered as operational.

- Prepaid expenses and accrued income; this item on the balance sheet, mainly includes prepaid expenses for equipment, insurance and accrued rent revenue from operations.

- Short-term investments; Short term investments are investments that a company has made and that will be converted into cash within one year.

- Working cash; as aforementioned, working cash is considered as the cash the company needs for its daily business activities. Since companies rarely disclose how large part of cash holdings that are used for daily activities, working cash has been assessed based on empirical studies of the cash holdings in S&P 500 companies. The studies show that companies in the S&P 500 on average use 2% of sales as working cash (Koller et al., 2005). Therefore, the same percentage is used in this study.

Non-current Assets

- Investment properties; As explained and illustrated previously, in order to be consistent with the NOPLAT calculations where all gain/losses in property values is considered non-operational, the value of Fabege's investment properties and invested capital have been adjusted accordingly.

- Property, Plant and Equipment; these are tangible assets in the form of inventories and other equipment, for example cars and other technical machinery. These are subjected to depreciation, but given the small size of this item in relation to the overall balance sheet (approximately 0,3%), depreciation has not been taken into consideration.

- Other non-current receivables*:* This item pertain primarily to promissory note receivables, which stem from the sale proceeds for properties that have been sold but not yet vacated, thus it's considered as operational, but not current receivable.

Operating Liabilities

Current liabilities (Non-interest Bearing)

- Trade payables; represents the company's obligation to pay off non-interest bearing debt.

- Tax liabilities; the tax liability is not financing operating assets, but instead it's considered a liability on the operations.

- Accrued expenses and deferred income; Accrued expenses are prepaid rents from the company's tenants, thus its deemed to be an operational liability.

- Other liabilities consist of accrued salaries, deferred income and other payables. In this case, deferred income is income received from prepaid rents from tenants, thus considered as an operational liability, along with the other items.

- Provisions related to rental guarantees on divested buildings: Out of the total amount of provisions, some relate to rental guarantees for divested properties. Hence, these are considered operational.

Non-current Liabilities

- Provisions; This item consist primarily of short-term provisions for pensions. There are generally two types of pensions plans; defined contribution plans and defined benefit plans. The big difference between the two is the ownership of the investment risk on the underlying pool of funds (Petersen & Plenborg, 2012). Whether to make corrections for pension plans is determined by if the plan is over- or underfunded.

  With a defined benefit plan the company guarantees a specific payment when the employee retires, thus there is a risk of over- or underfunding which has to be accounted for. The gains/losses affect the fair value of net pension liabilities, thus affect the equity through the income statement of recognized income and expense. (Koller et al., 2005).

  According to the annual report, a number of employees at Fabege have a defined benefit plan which involves continuous payments to Alecta, a private manager of company pensions. However, as there is no sufficient information to report these as defined benefit plans, Fabege has categorized them as defined contribution plans. A defined contribution plan means that the employer makes predefined contributions for the employees, and the final amount received in pensions is determined by the performance on the investment, thus there is no risk of over- or underfunding since the company has not promised any specific return on investments. Since Fabege only use a defined contribution plan for its pension payments, no correction has to be made (Koller et al., 2005), hence, its considered as an operational liability.

- *Other non-current liabilities:* This item consists of purchases of properties that have been paid for, but not yet accessed. Therefore, it is the opposite of the item *Other non-current receivables.* Accordingly, this item is also considered operational.

Non-operating Assets
- Excess cash and cash equivalents; As mentioned earlier under the section *operating assets*, the cash used for daily operations is estimated as part of the working capital, the remaining amount that is not used for the daily operations is considered excess cash.

- Interests in associated companies; Fabege conducts financial operations in one associated company. This is done through the raising of loans in the capital markets with the aim to expand

the company's financing base with a new source of financing. Therefore, this items concerns the financial operations of the company and is considered non-operational.

- Other long-term securities holding; this is considered as a financial investment, thus its deemed as a non-operational asset.

- Receivables from associated companies; consist of interest bearing receivables to associated companies. The annual report reveals no more information regarding this item, thus it's considered as a financing activity.

Non-operating Liabilities

Interest bearing:

- Liabilities to credit institutions; Consist of long-term interest bearing debt to credit institutions.

- Current liabilities to credit institutions; Also interest bearing debt to credit institutions with a maturity shorter than one year, thus considered as financing activity.

Debt equivalents:

- Derivatives; Financial instruments, primarily interest-rate swaps and forwards, used to manage financial activity.

- Other non-current liabilities; There is no information regarding this item, however, analyzing the annual reports of peer group companies it's clear that this item mainly relates to purchases of properties that have been paid for, but not yet accessed. Therefore, it is the opposite of the item *Other non-current receivables* and thus should be treated the same way, as operational.

- Deferred tax liabilities; having deducted deferred tax liabilities related to the unrealized changes in value of properties, the remaining amount is assumed to consist of deferred tax liabilities regarding profit generated from derivative instruments. With no further note, it assumed to be non-operating and not interest bearing.

Return on Invested Capital

Having classified all items in the balance sheet and income statement as being operational or non-operational, the invested capital, NOPLAT and free cash flows has been obtained.

Thus, it's possible to derive the Return on Invested Capital (ROIC), which is calculated by dividing NOPLAT with Invested capital. The ROIC is essential for company valuation since it gives an indication of a company's ability to create value.

In order to estimate the true value drivers, the ROIC will be broken down to its different parts. This is done not only for Fabege, but also for all of its peers, in this case Hufvudstaden, Wallenstam and Platzer. By comparing Fabege's ratios to its peers, it becomes possible to determine what drives value in the industry, but also how it differs between the companies. A peer comparison will also tell if a certain

company stands out, and if so, what drives the difference. In such case, it might be interesting to dig deeper in to the specifics.

Peer Group Selection

When comparing Fabege to peer companies it becomes important to select a peer group with similar characteristics. As elaborated on earlier, the real estate industry is wide and contains companies of different size, property class and geographical location.

First of all, to limit the number potential peers, only Swedish companies listed on a Swedish stock exchange are considered. This makes it easier because they use the same accounting standards, and they all share some common characteristics of the Swedish real estate market (Leimdörfer, 2016). Furthermore, the peer group is selected based on the concentration of property type and the location. Finding good peers is difficult since very few companies are as concentrated as Fabege, neither geographically nor in property-class specificity.

The first criterion for the peer group is; the companies must have a majority of its holdings in either Stockholm or Gothenburg, which are the two largest cities in Sweden. The second criterion is; a significant share of its property holdings should be commercial real estate.

Hufvudstaden

With 96% commercial properties, all of which is located in either Stockholm or Gothenburg (81% Stockholm and 19% Gothenburg), Hufvudstaden is considered a good peer. Much like Fabege, the company aims to offer its customers properties in attractive locations inside- and in connection to the inner city of respective city. Hufvudstaden is a well-established real estate company in Sweden, which was founded 1915. The company owns approximately 30 properties and actively works with both property management and property development of its property holdings. (Hufvudstaden, 2016)

Platzer

Platzer is a company with all of its properties located in Gothenburg, which is the second largest city in Sweden, and the property portfolio consists of 89% commercial properties. Thus, the company meet the criteria set up for the peers.

The company's strategy is to focus on a few selected areas in the Gothenburg region, including the inner city. Moreover, Platzer has a high growth strategy, which includes large investments in property development, project development and renovations (Platzer, 2016). Even though the company has many similarities with Fabege when it comes to strategy, it needs to be emphasized that Platzer is a relative young real estate company focusing more on expansion. In addition, since Platzer exclusively focus on properties in Gothenburg, it has some implications when comparing the performance to Fabege. Even though Stockholm and Gothenburg have much in common, the rent level in Gothenburg tends to be

lower than in Stockholm, also the vacancy and yield levels are in general higher (JLL, 2017). It is also worth noting, with an enterprise value of approximately bSEK 13, Platzer is a significantly smaller company than Fabege (Platzer, 2016).

Wallenstam

Wallenstam has almost all of its properties in Stockholm (30%) and Gothenburg (69%). One implication of having Wallenstam as peer, is that only 36% of its holdings are commercial properties, while 59% is classified as residential (Wallenstam, 2011-2016). Although the residential and non-residential property market correlates, they differ slightly in characteristics (Leimdörfer, 2016). Yet, it is believed that Wallenstam is among the three most suitable peers considering the lack of other alternatives. Besides managing its properties, the company also develops new and existing properties to improve the portfolio. Much like Fabege, the company works in close cooperation with the districts it chooses to operate within. A majority of the properties are located within the inner city of either Gothenburg or Stockholm, or within areas in close proximity to the inner cities. For example, Norra jurgårdsstaden, which was mentioned in the strategic analysis, is one of the areas in which Wallenstam has properties. Beside this, Wallenstam is fairly similar in size to Fabege, with an Enterprise value bSEK 40 as of 31st March.

Historical ROIC

For the ROIC calculations and comparison with peers, only revenue from property management (rent) is considered as an operating income. Since the revenues differ substantially between the companies when incorporating revenues from transactions and unrealized value changes in investment properties, these items have been excluded. It is believed that this will make the comparison between peers more accurate. Since the realized gain in sale of property equals the difference between the book value and the actual selling price for the property, it becomes difficult to determine whether the realized gains stem from a company's performance or if it's a result of the books not being entirely updated to reflect the actual value. A property that is sold just before it is revalued will generate higher revenue than a property sold the day after it was revalued in the books. In addition, all consensus estimates for the industry, which will be used later in the multiple valuation, is calculated using an EBITDA, which is based exclusively on revenues from property management (Bloomberg, 2016). Accordingly, to avoid misinterpretation and speculation, all peers will be compared with no regards to realized gains in sale of properties or unrealized value changes in properties.

Worth noting however, as aforementioned, for the overall valuation of Fabege, the realized gains related to sale of properties are considered to be an operational activity. Accordingly, all necessary adjustments have been made to ensure consistency in the specific assumptions related to the peer comparison, thereby excluding operations related to transaction activities. The calculations related to this chapter can be found under section 6 in appendix.

Average ROIC

Even though the historical data has been adjusted for unrealized value changes there are still changes in invested capital over the years. As aforementioned, invested capital is derived from the balance sheet while NOPLAT is based on the income statement. As a result of this, invested capital will yield different outcome if its calculated in the beginning or at the end of each year, while the NOPLAT show what has happened during the year. Since it is believed that the changes in invested capital are made continuously during the year and not just in the beginning or the end of the year, it is recommended to use the average invested capital when calculating ROIC (Koller et al., 2005). Accordingly, the ROIC is calculated by dividing NOPLAT with the average invested capital over the year.

Decomposing ROIC

By breaking down ROIC to its value drivers and comparing it to peers, it is possible to get a better understanding of the company's strengths and weaknesses. ROIC is first broken down to pre-tax ROIC and cash tax rate. As illustrated in the figure below, the Pre-tax ROIC is then broken down into operating margin and average capital turns. The revenue and the different costs are then evaluated separately, while the average capital turns are broken down to fixed assets and operating working capital.

Figure 6.6
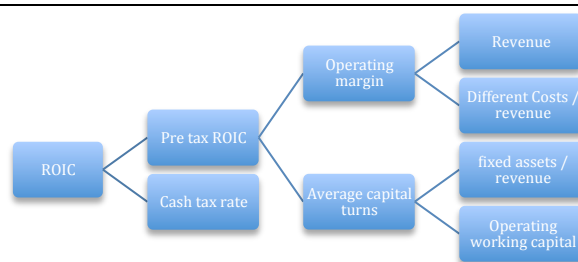
Source: Own creation based on (Koller et al., 2005)

ROIC

Hufvudstaden has the highest average over the period with a ROIC of 4,3%, followed by Fabege (4,1%), Platzer (4%) and Wallenstam (3,8%). It is however obvious that the ROIC in 2012 was exceptionally large for Hufvudstaden and Wallenstam, therefore increased the average significantly. Since the time period is relatively short, one extraordinary year will have a large impact on the average ROIC. As will be further elaborated upon later in this section, the abnormal ROIC in 2012 is attributed to favorable tax-reductions in that given year. Furthermore, Fabege's peak in 2014 is believed to be a result of low capital expenditures, high operating profit and a favorable tax. It can also be seen that the ROIC is higher in 2016, which was a result of generous tax considerations from operations. Since the tax seems to have a significant effect on ROIC, the focus will rather be on the operating tax and the pretax ROIC.

![CBS logo]

Figure 6.7

ROIC

Source: Own creation
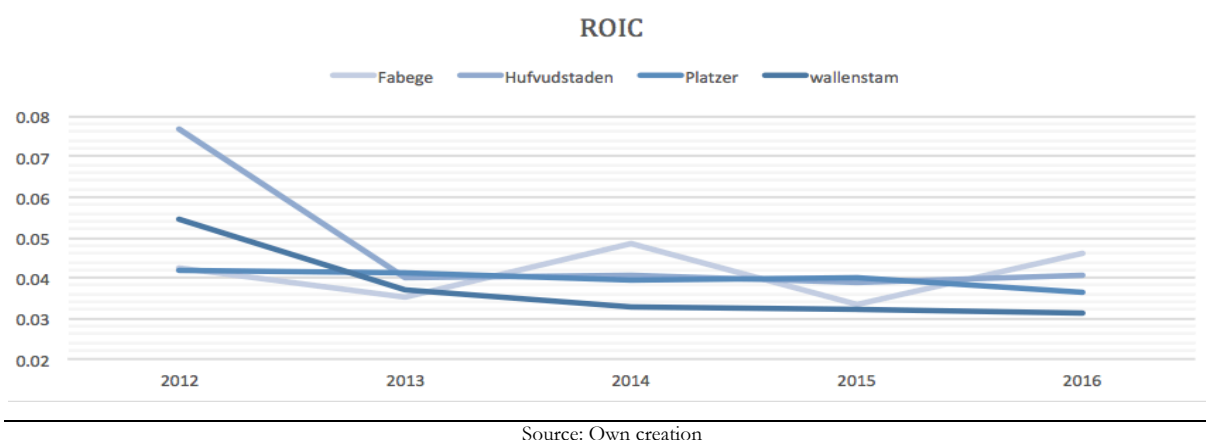
Tax on operations

The Swedish corporate tax rate is currently 22% and has been so since 2013. In between 2009 to 2012 the rate was 26,3% and before that it was 28% (Trading Economics, 2016). However, the actual taxes paid on operations have differed from these tax rates. In the table below, the tax on operations has been calculated by deducting the tax shields attributed to non-operating items from the reported tax. In addition to this, the tax has been adjusted for one exceptional year (2012), in which Fabege had to pay a penalty-tax of mSEK 1900 due to a court ruling related to transactions made in 2003-2005 (Fabege, 2016). After adjustments, the operating tax rate has been calculated by dividing operating tax with operating profit.

Figure 6.8

Tax

Source: Own creation
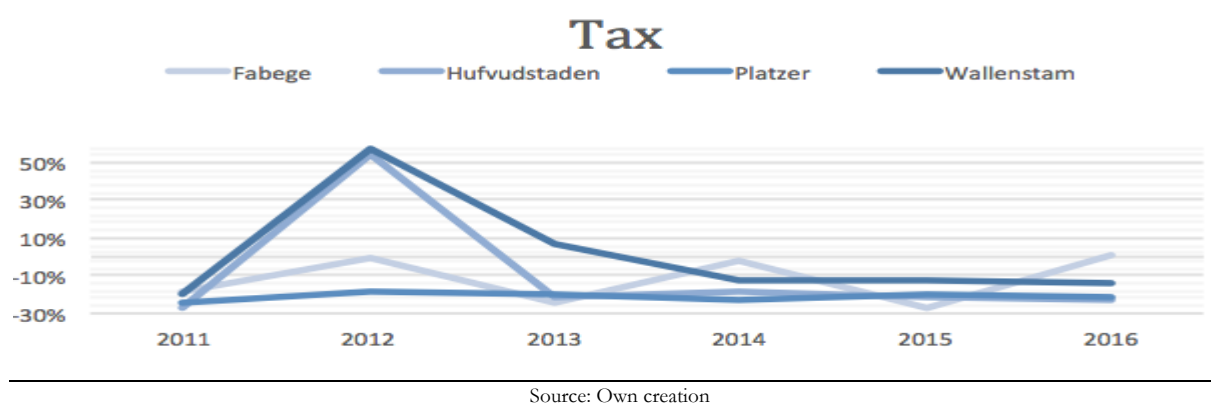
As can be seen, the tax related to operations differs significantly from year to year, with 2012 as a large exception from the average. Both Hufvudstaden and Wallenstam reported high tax refunds, which implied a positive tax on operations (money back), whereas Fabege's and Platzer's operating tax decreased but still entailed a negative cash flow. As aforementioned, Fabege's tax has been adjusted for the penalty tax of mSEK 1900 related to an old tax case in 2003-2005. The high reported tax refunds for Hufvudstaden and Wallenstam is a consequence of the change in the Swedish corporate tax rate from 26,3% to 22% in that

year. Recalculating the deferred tax as 22% instead of 26,3% would yield a mSEK 887 higher tax for Hufvudstaden. The same changes would have increased Wallenstam's tax with mSEK 392.

Based on the graph it seems like Platzer and Hufvudstaden (apart from 2012) has a relatively stable tax related to operations, often equal to the Swedish marginal tax rate of 22%. The tax differs significantly more for Fabege, and seems to be lower in general for Wallenstam. A potential explanation for this could be that Fabege and Wallenstam tend to have more transactions which potentially enable more favorable tax considerations. As mentioned in the strategic analysis, some real estate companies use a method called "packaging" when selling properties, which results in lower costs related to tax. However, a further analysis on tax loopholes is believed to be out of the scope for this thesis and the focus will instead be on the Pretax ROIC.

Pretax ROIC

The pre-tax ROIC calculations yields more stable results over the years. Platzer has the highest pretax ROIC on average with almost 5%, followed by Fabege (4,6%), Hufvudstaden (4,5%) and last Wallenstam (3,6%). The large difference between pretax ROIC and ROIC post tax, indicates that tax on operations have a significant impact on ROIC, especially for Hufvudstaden and Wallenstam.

Since the pretax is calculated as operating profit divided by invested capital it becomes obvious that the estimated value of investment properties, which is the bulk of invested capital, has a significant impact on the ratio. As a result, if companies have different strategies regarding acquisitions and divestment of properties, their invested capital will differ significantly. Thus, the importance of finding companies with similar strategies, or adjusting for the differences. Moreover, properties located in areas with lower yields are associated with lower risk, and vice versa (Leimdörfer, 2016). This is why it's important to consider the type of properties and geographical focus in the property portfolio when selecting peers. Since it's difficult to find perfect peers, one should take these differences into consideration when analyzing the ROIC between the companies.

Figure 6.9
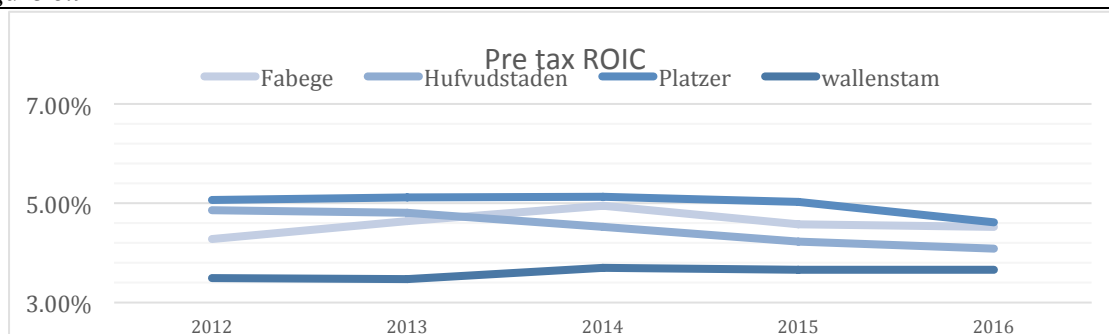
Source: Own creation

Operating Margin

The operating margin is calculated as the operating profit divided by revenues. The operating margin has been rather similar for Fabege, Hufvudstaden and Platzer during the last couple of years, meanwhile Wallenstam's ratio has been significantly lower. The low margins are indeed a contributing factor to why Wallenstam's pretax ROIC was significantly lower.

Figure 6.10

Operating margin

Fabege — Hufvudstaden — Platzer — Wallenstam

Source: Own creation
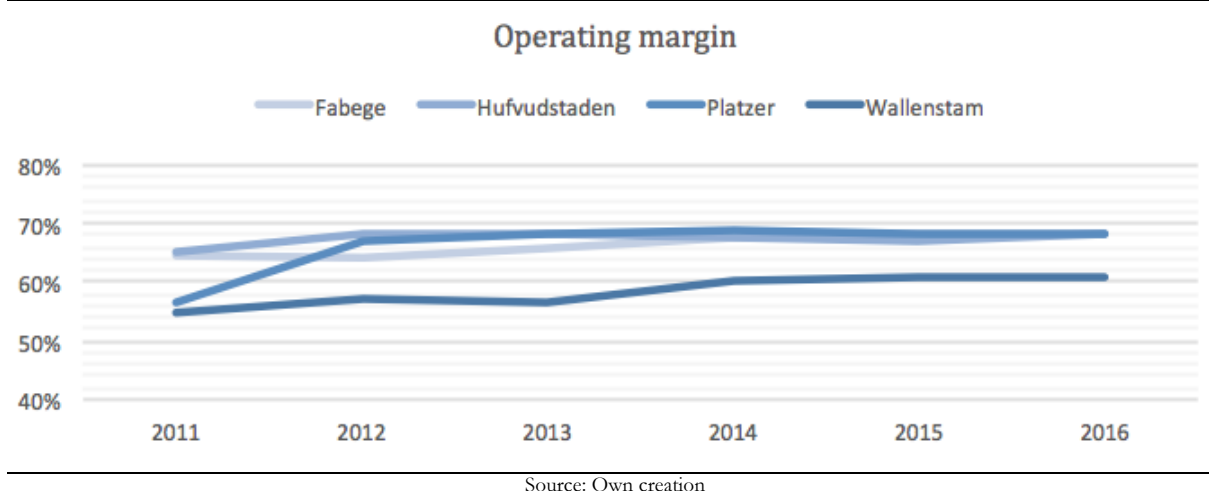
The graph above also shows that the operating margin has increased for all of the companies in the peer group.

Since both the market rent and the operating margin has increased over the last couple of years, it seems like the market rent has increased faster than the operating costs. However, as lease contracts for Fabege are renegotiated every fourth year on average, an increase in market rent will boost revenues successively as contracts are renegotiated. This will become extra prominent in following years, since the increase in market rent was exceptionally strong in 2016.

Average Capital Turns

Average capital turns indicate how well companies employ their invested capital and is calculated as the operating income over the average invested capital (Koller et al., 2005). The average capital turns for the peer group lies in between 0,06-0,07, which seems reasonable given the nature of the industry with large capital expenditures and negative working capitals.

The average capital turns are slightly decreasing for Hufvudstaden and Platzer while Fabege and Wallenstam have more or less the same ratio as in 2012 even though Fabege's ratio has been fluctuating. It is however interesting to note that Platzer, with its high-growth strategy, has increased its invested capital significantly more than the other peers, which partly explain its decreasing capital turnover.

Figure 6.11
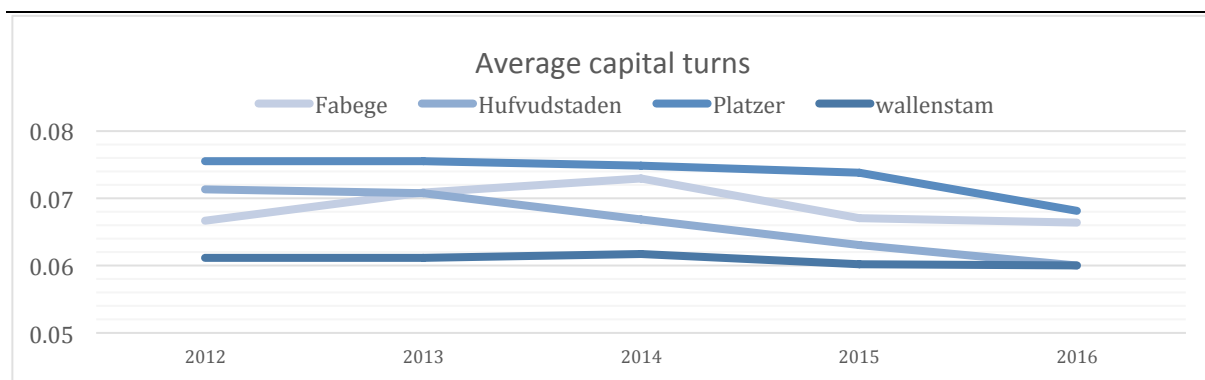
Source: Own creation

Factors Affecting Operating Margin

Separating different costs over operating income and comparing them between the peers can break down operating margin. A significant proportion of the costs are categorized as maintenance and property related costs as well as central administration, these items appear on the income statement for both Fabege and its peers.

Operating expenses such as maintenance, administration, letting and other property related costs (not central administration) are bundled together and compared as a ratio over operating income. The ratio is around 20% for all of the companies, though in the higher range for Wallenstam (24,7%). For Fabege (21%), Hufvudstaden (20,3%) and Platzer (19,3%) the ratios also seem to follow each other closely over the years. Worth mentioning is that the ratio has decreased for all the companies over the period, and especially Wallenstam (from 29,2% 2011 to 21,7% 2016). This can arguably be explained by favorable market characteristics, where the increase in market rent has been steeper than the increase in operating costs, thus improving the operating margin.

Central administration over operating income is also significantly different between the peers. Once again Wallenstam's ratio (11,7%) is disproportionately large in relation to peers, Fabege (3,3%), Hufvudstaden (2,2%) and Platzer (5,8%).

Finally, the ground rent and property tax over operating income is also compared between peers. These ratios are as following; Fabege (8,7%) Huvfudstaden (10,1%), Platzer (6%) and Wallenstam (5,1%). Since the ratio have remained relative stable for each company over the years, and with no indication of change, it is assumed to remain the same.

Factors Affecting Average Capital Turns

The average capital turns are affected by the relationship between the operating invested capital and the revenues. Since the invested capital include both operating working capital and non-current operating assets, average capital turns can be broken down. The adjusted value of investment properties represents a majority of the non-current operating assets.

**Operating Working Capital over Revenues**

The operating working capital over revenues tend to be negative for the peers, which in its turn decrease the invested capital. The ratio differs significantly over the years as a result of fluctuating operating working capital, while the revenues stay more consistent. The largest current liability is accrued expenses and prepaid income. With no further information in the annual report, the negative working capital is believed to be a result of industry standards where tenants usually pay rent in advance.

Operating working capital over revenues has on average been as following; Fabege (-30%), Hufvudstaden (-20%), Platzers (-27%) and Wallenstam (-9%). The low ratio for Wallenstam can be explained by other receivables, which could contain promissory notes that stem from sale proceeds. However, there is no information regarding this item, thus it is assumed to be operational and therefore included in the working capital calculation. Since the operating working capital has a relatively small effect on invested capital, the focus will rather be on the noncurrent assets.

Fixed Assets over Revenue

The adjusted value of investment properties represents the absolute majority of the fixed assets. The sum of other non-current assets represents no more than 1% of the fixed assets for any of the peer group companies. As a result, there is little difference between this ratio and the ratio for adjusted value of investment properties over revenues. The graph below shows a trend of an increasing ratio, meaning lower revenues in relation the fixed assets. The only company with a lower ratio in 2016 (15,4) compared to 2011 (15,5) is Fabege.

Figure 6.12
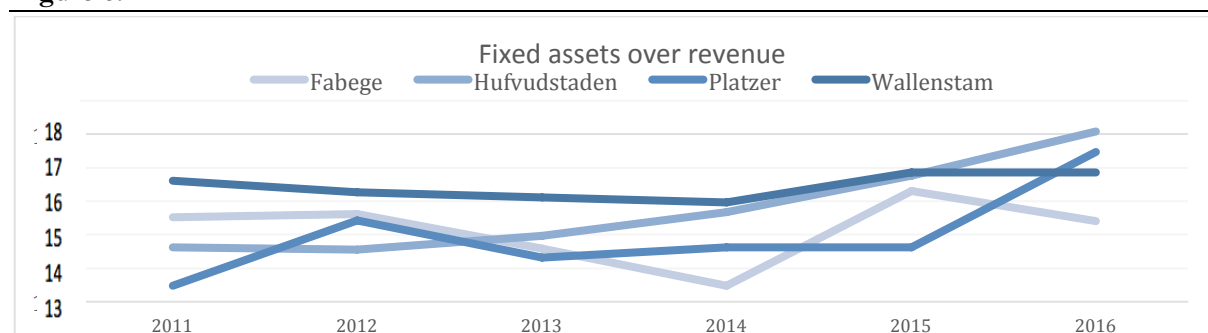
Source: Own creation

It has only been minor changes to the ratio for Wallenstam, while the ratio has increased significantly for both Platzer and Hufvudstaden, which is interesting since the value of the investment properties has been adjusted for accumulated unrealized value changes, which makes the balance sheet item significantly lower. The ratio would have been much higher if the unrealized value changes where included, given everything else equal.

Insights from Decomposing ROIC

Decomposing ROIC has enabled a better understanding of what creates value in Fabege and how it differs from its peers. There are a few findings that should be emphasized. First of all, the ROIC seems very dependent on the cash tax which differs significantly from the given corporate tax rate, between the years and also among the peers. Even though the factors affecting the tax on operations might be hard to predict for the future, one should still consider that the ability to plan taxes might have large impact the ROIC in the future.

Furthermore, since the factors affecting the actual tax is hard to predict, it is argued that the Pre-tax ROIC play a more significant role in the understanding of the company's actual ability to create value. Pretax ROIC showed to be more consistent over time than ROIC, which indicates that part of the volatility is caused by the tax.

The increasing operating margin is believed to be an effect of favorable market conditions such as rising market rents and lower vacancies, which has increased revenues. At the same time, it can be concluded that the operating costs have remained relative stable. All companies in the peer group have experienced increased operating margins in the last 5 years.

When dividing the operating costs into different groups, it seems like operating expenses such as maintenance, tenant customization and property administration have decreased the most in relation to revenue, thus contributed to increased margins. Costs such as property tax, ground rent and central administrations seem more stable.

As a final note, by breaking down ROIC it becomes evident that the companies differ slightly from each other. Thus, the results of the comparable analysis should be treated accordingly. There might be some differences in strategy, capital structure and revenue growth between the companies. Still, the peer group analysis has provided valuable insights into what drives value in the industry and will therefore be used to support the conclusions made in the forecasting- and valuation section following this chapter. Given this, the focus in the forecasting period will be on the key value driver, rental income, and some of its most imperative variables, i.e. vacancy, market rent, and the size of the property portfolio.

Risk analysis
Liquidity risk
Liquidity is essential for all companies, first and foremost to pay the bills but also to carry out investments. As a result of this, it is important to assess both the long- and short-term liquidity risk (Petersen & Plenborg, 2012). As concluded earlier, the real estate market has seen a tremendous growth in recent years, which has boosted the balance sheet of many real estate companies. Consequently, strong balance sheets have enabled them to obtain larger amounts of debts, which in its turn has increased interest costs, and arguably the risk of financial distress. Given the current development in interest rates along with the high debt/value ratio in many real estate companies, it seems highly relevant to conduct a thorough analysis of Fabege's liquidity risk.

Short-term liquidity risk

Qucik Ratio

The quick ratio is used to see how well current assets can cover current liabilities in the event of liquidation. Accordingly, a higher current ratio tends to be synonymous with lower short-term liquidity risk. (Petersen & Plenborg, 2012)

Analyzing the quick ratio for Fabege, it can be concluded that its current liabilities are significantly higher than its current assets, resulting in an average ratio of 0,14. By analyzing the quick ratio of its peers, it is obvious that most real estate companies have significantly higher current liabilities than current assets.

Figure 6.13

Current ratio	Fabege					Hufvudstaden			Platzer			Wallenstam		
Year	2012	2013	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Current Assets	674	463	1916	546	1863	583	564	1173	123	290	200	935	750	1220
Current Liabilities	9358	4545	7762	8056	8657	1535	1706	3300	151	233	312	14500	14250	15582
Current Ratio	0,1	0,1	0,2	0,1	0,2	0,4	0,3	0,4	0,8	1,2	0,6	0,1	0,1	0,1

Source: Own creation based on (Fabege, 2008-2016)

This seems reasonable since rents are usually paid in advance. However, it's difficult to estimate what ratio that should be considered as adequate. A rule of thumb is that a quick ratio of 2 implies a low short-term liquidity risk (Petersen & Plenborg, 2012). On the other hand, it's hard to generalize with a single rule of thumb across different industries. In this case, due to the small amount of current assets in relation to the overall balance sheet, it is believed that Fabege are highly efficient when it comes to invest its liquid assets into other securities and long-term assets. However, it's short-term liquidity risk is considered to be high. In event of liquidation, Fabege could find it difficult to pay of its short-term liabilities.

Long term Liquidity risk

A company's financial leverage can be used to measure its long-term liquidity risk (Petersen & Plenborg, 2012). It is calculated as *Total Liabilities* divided by *Total Equity*. A high ratio of financial leverage tends to

indicate a high long-term liquidity risk. As aforementioned, real estate companies have in general a high debt to value ratios. The low interest rates and easy access to cheap financing in recent years have enabled real estate companies to obtain more debt. Nonetheless, as can be seen in the figure below, the debt to equity ratio has not necessarily increased. This is because the value of properties has also increased, thus boosted company's value of equity.

As illustrated in the figure below, all companies except Hufvudstaden have financial leverage ratios of 1,2 and more. The reason for Hufvudstaden's seemingly low financial leverage ratio, is that they have repaid large portions of its debt in recent years, with the capital gains from its sale of properties (Hufvudstaden, 2016).

Figure 6.14

Financial Leverage	Fabege					Hufvudstaden			Platzer			Wallenstam		
Year	2012	2013	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Total Liabilities	22305	22880	22235	25272	27221	11721	12756	14661	5541	6546	9153	18874	19464	21614
Book Value Equity	11404	12551	13783	16479	23002	16695	19567	23047	2966	3593	4703	12883	15103	17788
Financial Leverage	2,0	1,8	1,6	1,5	1,2	0,7	0,7	0,6	1,9	1,8	1,9	1,5	1,3	1,2

Source: Own creation based on (Fabege, 2008-2016)

Before 2014, Fabege had a financial leverage ratio in between 1,7-1,9, which is believed to be in the upper limit of what is sound for the company. In recent years, Fabege's leverage has decreased, enabling them to reach its target DTV-ratio of less than 55%, which is believed to be a more solid ratio.

Interest Coverage Ratio

The interest coverage ratio is another way to measure and compare long-term liquidity risk. It can be used as an indicator for a company's ability to pay its financial expenses (Petersen & Plenborg, 2012). The ratio is calculated as either cash flow from operations divided by net financial expenses, or EBIT divided by net financial changes. Using EBIT to calculate interest coverage ratio for a real estate company can be misleading since it includes large posts of accounting based income such as unrealized changes value of properties and financial derivatives, which represents no real inflow of cash. Instead, it is believed that using cash flow from operations will yield a more realistic result that truly reflects the risk of financial distress faced by Fabege.

As shown in the figure below, Fabege's interest coverage ratio is negative in two years (2012, 2015), implying that its cash flow generated from operations in those years were not sufficient to pay off its financial expenses.

Figure 6.15

Interest Coverage Ratio	Fabege					Hufvudstaden			Platzer			Wallenstam		
Year	2012	2013	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Cash Flow from Operations	-1911	341	1938	-1770	892	572	444	439	-773	-580	-2944	1609	-423	5
Net Financial Expenses	530	762	759	706	998	145	137	125	150	136	145	348	270	249
Interest Coverage Ratio	-3,6	0,4	2,6	-2,5	0,9	4,0	3,2	3,5	-5,1	-4,3	-20,4	4,6	-1,6	0,02

Source: Own creation based on (Fabege, 2008-2016)

This is believed to be the case for many real estate companies, since the nature of the industry is such that it requires large capital expenditures from time to time. Still, it's important to understand to what extent

debt and financial expenses can be obtained without incurring to much financial distress. For example, analyzing the interest coverage for Fabege using EBIT, the ratio improves significantly which can be misleading since it makes the company look more liquid than it actually is.

Figure 6.16

Interest Coverage Ratio							
Year	2011	2012	2013	2014	2015	2016	Average
EBIT	1337	1367	1484	1718	1385	1928	1537
Net Financial Expenses	613	530	762	759	706	998	728
Interest Coverage Ratio (EBIT)	2,18	2,58	1,95	2,26	1,96	1,93	2,14

Source: Own creation based on (Fabege, 2008-2016)

It was concluded in the strategic analysis that Fabege have made large investments in the city district development in Solna Business Park and Arenastaden in recent years, which explains the negative cash flows in 2012 and 2015. Since Fabege's negative ratios are only observed in two years they are not seen as business requirements, but rather exceptions. Thus, they are not expected to be continuous, as they are for Platzer, which have had negative cash flows each of the last three years. In case Platzer's investments yields too low return, they could face a significant liquidity risk.

Although it's preferable to have a strong interest coverage ratio, Fabege's risk of having insufficient liquidity is deemed small. It is believed that in bad times, Fabege can always decrease its capital expenditures, thus significantly improve its interest coverage ratio and pay off its financial expenses with the cash flow generated from operations.

Chapter 7 – Forecasting

Whereas previous chapters have focused on accounting data and the historical performance of the company, this chapter aims to provide insights into how the company may develop in the future. The focus will be on forecasting Fabege's financial statements, which will be used for calculating the free cash flows and future ROIC, both of which are key elements when valuing a company (Koller et al., 2005).

Since Fabege's core business is the letting and development of commercial properties, its primary revenues stem from rental income and transactions. Most of its expenses are therefore, directly linked to the maintenance of its commercial properties. Thus, a demand-driven approach with revenue as the driver is applied when forecasting future performance of the company.

Forecasting is based on the analysis of historical performance, and the prediction of current and future outlook of strategic value drivers. It is therefore important to make a distinction between "Historical period", "Explicit forecasting period" and the "Steady state period" (Koller et al., 2005).

The historical period provides valuable insights to historical financial value drivers that can be used as foundation for the explicit forecasting period. Depending on the findings of the strategic analysis, the financial value drivers are expected to change in one way or another in the explicit forecasting period. In order to capture these changes, it has been decided that the explicit forecast period should be 10 years, which is assumed to be long enough for the company to reach a steady state (Koller et al., 2005).

However, using such long forecast period makes it more difficult to accurately forecast individual line items 10 years into the future. Thus, it is recommended to split the explicit forecast into two periods. Still, in this case a detailed estimation of Fabege's expected operating income has been made for the entire explicit forecasting period. This includes an estimation of the future development in market rent and vacancy levels, as well as an estimation of Fabege's development projects and its completions. However, for the remaining line items, a simplified forecast is made for the last 5 years of the explicit forecast, focusing only on a few important factors like operating working capital margin, CAPEX-margin etc.

Worth noting, although the chosen length of the explicit forecast period is important, it does not affect the value of the company; it only change the distribution of a company's value between the explicit forecasting period and the terminal value period (Koller et al., 2005)

Once the company has reached a steady state, it is assumed to grow at a constant rate and reinvest a fixed proportion of its operating profits into the business each year. It is also assumed that the company earns a constant rate of return on its base level of invested capital as well as all new capital invested. Based on these assumptions, the Growing Perpetuity Formula can be used to calculate the growth in perpetuity, i.e. the terminal value for the company (Koller et al., 2005)

Forecasting Rental Income (2017-2021)

As described in previous section, a demand driven approach with revenue as the main driver will be applied. Therefore, it is important to understand what primary factors that generate revenue for real estate companies are. In the strategic analysis it was concluded that revenues primarily stemmed from rental income, thus this section will be focused on forecasting the most important variables affecting rental income. A small part of revenues stemmed from property transactions, which will be discussed when forecasting the balance sheet.

In order to make the forecasting of rental income as accurate as possible, following five factors are believed to be the most essential to analyze:

- Vacancy level

- Customers' ability to pay its debt.

- Terms of the lease contract

- Rent level

- Amount of lettable area

However, worth noting is that these variables depend on a variety of different factors, for example; the interest rate, inflation, unemployment rate and GDP growth rate. All of these factors interact in a rather complex fashion and will indirectly affect the forecasted variables. These factors were analyzed in the strategic analysis and will help support the assumptions behind the forecasted variables.

To further increase the accuracy of the forecast, Fabege's commercial property has been disaggregated into its respective geographical areas. Hopefully, this will better capture the growth rates and the different characteristics of each separate region.

Development in Portfolio Vacancy

Stockholm Inner City

The demand for office premises in Stockholm inner city and CBD is strong and market rents have reached all-time high. Accordingly, the market vacancy level is at low 2% in CBD and 5% in the rest of inner city. The supply is still very limited since there is not enough space to build more office premises in central Stockholm. In addition to this, Stockholm is predicted to have the largest growth in population in Europe the coming years, thus it seems reasonable that more people will join the workforce and the demand for office premises will increase.

A limited supply of commercial properties along with a continuous strong demand is expected to push down vacancies even more in Inner city. Fabege's vacancy level in Stockholm inner city has decreased from 7% in 2012 to 5% in 2016 and is, according to Fabege, expected to continue to decrease the following years. It has therefore been assumed that Fabege's vacancy level in Stockholm inner city will decrease to 3,5% in 2020. Thereafter, when the market rent reaches a certain level, it is believed that the

vacancy will increase slightly as it becomes more attractive to find offices in less expensive suburbs. As the population is growing and rent levels increase rapidly in central Stockholm some businesses will tend to move its offices to adjacent suburbs with lower rent levels, such as Solna and Hammarby Sjöstad, both of which have increased in popularity in recent years Thus, from 2020 and onwards, the vacancy in Stockholm inner city is assumed to maintain a stable level of 4%.

Figure 7.1
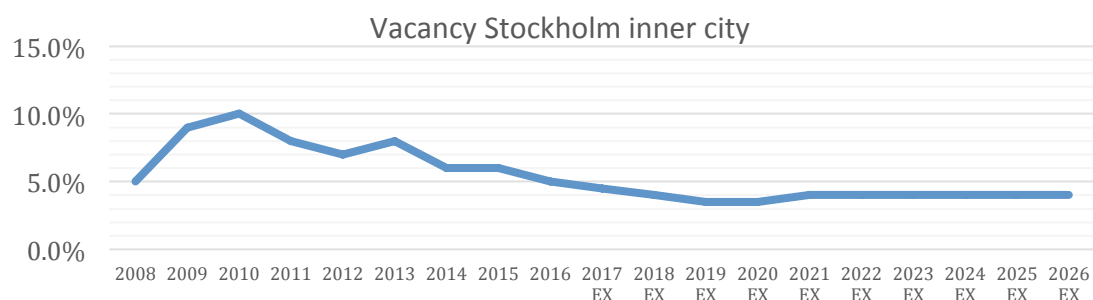
Source: Own creation based on (Fabege, 2008-2016)

Solna

Solna Business Park

As concluded in the strategic analysis, the office market in Solna Business Park has gained in popularity in recent years. Even though the supply of office premises has increased, the market vacancy in Solna Business Park has decreased from 10% in 2012 to 4% in 2016. At the same time, Fabege's vacancy was 6% in 2016, thus has potential to decrease even more, especially since many of its properties under construction will be finished in 2018((Fabege, 2016). Moreover, given the market share of Fabege and the resources put into developing the district, it's seems reasonable to think that the demand for commercial properties will continue to increase faster than the supply, thus lowering the vacancy in coming years. When Fabege's construction of new properties gradually decrease, the vacancy is assumed to stabilize around a steady level of approximately 4,5%, which is expected to be in line with the average market vacancy by then.

Arenastaden

Just next to Solna Business Park lies Arenastaden, which has become a hub for many major companies. With its excellent transport links and closeness to central Stockholm, the demand for office premises in this area is high. In the last 4 years, the market vacancy has decreased from 12% to 2,5%. Fabege on the other hand, has currently a vacancy rate of 6%, thus it's significantly higher than that of the market. This could be explained by the fact that many of Fabege's properties are old and have been under development the last few years. However, the majority of its commercial properties are expected to be fully renovated by 2021, thus Fabege expects its vacancies to decrease by then.

Moreover, the new community train will be finished in June 2017, transporting people from Arenastaden to Stockholm central station in 6 minutes, which arguably will increase the attractiveness of Arenastaden as a hub for office premises. Therefore, the vacancy is assumed to decrease successively until 2020, as more properties reach completion. Thereafter, as for Solna Business Park, the vacancy will reach a steady state, as many of the on-going property developments will be finished by then.

Conclusively, the overall vacancy level for Fabege in Solna is expected to decline from 6% in 2016 to 5% in 2020 and thereafter reach a steady state of 4% which is assumed to be in line with the average market vacancy by then.

Figure 7.2
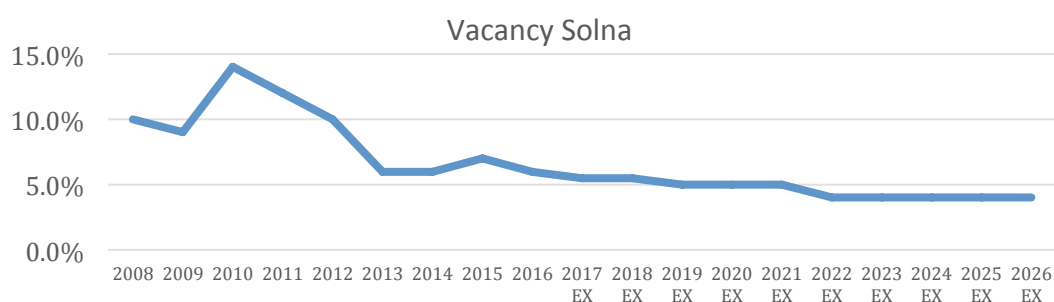
Source: Own creation based on (Fabege, 2008-2016)

Hammarby Sjöstad

Like Solna, Hammarby Sjöstad is an upcoming region that has quickly become one of the most attractive areas for commercial properties in greater Stockholm (Fabege, 2016) (JLL, 2017). The vacancy level in Hammarby sjöstad has decreased from 20% in 2012 to 4,5% in 2016 (Fabege, 2016). During the same period of time, the lettable area of commercial properties has increased from 126 000 sqm to 140 000 sqm, and Fabege's vacancy has been reduced from 12% to 8% (Fabege, 2008-2016). This implies that demand has been strong in this region, however, Fabege still has a higher level of vacancy than the market. One explanation for this, could be that Fabege have much smaller tenants with shorter lease contracts in Hammarby Sjöstad, compared to its other regions, thus it's more difficult to keep a low but stable vacancy level.

Figure 7.3
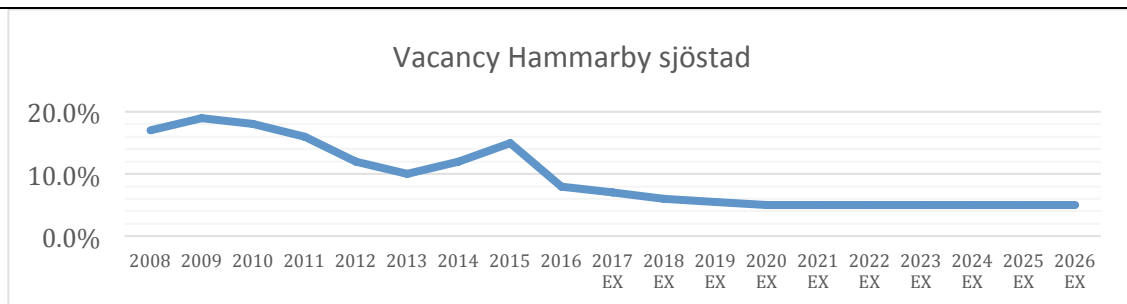
Source: Own creation based on (Fabege, 2008-2016)

Furthermore, a lot of Fabege's properties have been in the development phase for the last few years, therefore, it's fair to believe that vacancy will decrease once these properties are completed. The high demand and shortage of supply of office buildings will most likely continue to drive down vacancy levels, although not to the same level as in Stockholm Inner City. Its therefore assumed that vacancy level will drop to 5,5% in 2019, thereafter it will reach a steady state of 5%.

Given today's low supply of office premises, along with low interest rates, population growth and a strong demand, the vacancy level for the next years is predicted to decrease in all of Fabege's three regions, Stockholm Inner City, Hammarby Sjöstad and Solna.

Customer Bad Debts

The risk of suspension of customer payments is deemed small. Customer's ability to pay their rent is affected by their stability and the general business climate (Fabege, 2016). Fabege's lease portfolio consists of companies of a variety of different sizes and industries. The 15 largest tenants are stable international companies, which constitute roughly 30% of the total rental value (Fabege, 2016). The tenants are highly solvent and suspension of rent payments is negligible (Fabege, 2016). This is due partly because of strong credit ratings and efficient procedures that quickly identify late payers. During the last five years, total rent losses have been estimated 0,2% of the rent due (Fabege, 2016). Thus the risk of bad debts and late payments is considered small and won't have an effect on the forecasted rental income.

Contract Length

Fabege regularly conducts negotiations of its lease contracts in order to have a balanced range of maturity on its leases. The majority of its leases have terms of 3-5 years, with an average of 3,6 years (Fabege, 2016). While long contracts provide a stable period of cash flows, short-term leases offer more flexibility, which enables Fabege to respond quickly to present rise in market rents.

Illustrated in the figure below, a table of Fabege's current leases and years to maturity is shown.

Figure 7.4

Lease Maturity Structure			
Year of Maturity	No. Of Leases	Annual Rent SEK (000)	%
2017	536	344	16%
2018	324	388	18%
2019	213	348	16%
2020	96	323	15%
2021	47	158	7%
2022 and Beyond	119	493	23%
Commercial	1335	2054	94%
Housing Contract	137	26,7	1%
Garage and Parking	849	127,7	5%
Total	2321	2194,0	100%

Source: Own creation based on (Fabege, 2016)

By analyzing the chart, it is clear that the majority of Fabege's portfolio of leases is up for negotiations within three years, which means that they have good potential to capitalize on the predicted rise in market rents the coming three years. According to Fabege's annual report, 7% of Fabege's portfolio is up for renegotiation in 2021 and 23% of the portfolio is supposed to be renegotiated in 2022 and onwards (Fabege, 2016). However, given the average length of Fabege's lease contact, it is reasonable to believe that the majority of the contracts renegotiated in 2017 will have expired in 2021, thus it is probably more than 7% of Fabege's lease contracts that will be renegotiated in 2021. In addition, since Fabege's property development could be consider riskier than its property management, they seek to secure future cash-flow streams by renegotiating longer terms on its lease contracts in Solna and Hammarby Sjöstad (Fabege, 2016). With no further details, it is assumed that contracts will on average be renegotiated every fifth year from 2019 and onwards. Moreover, all rent renegotiations are assumed to take place in beginning of each year, since rents usually are paid in advance. Also, it is assumed that all renegotiated contracts are adjusted with the current market rent in the given year.

Development in Market Rent

As concluded in the earlier discussion of supply and demand in the Stockholm region, vacancy and market price correlates, such that low vacancy entails higher rents. Figure 7.5, illustrates the development in rent prices of commercial properties in Stockholm since 2008. By looking at the chart, it can be concluded that market rent has increased significantly since 2010, with a CAGR of almost 11%.

However, analyzing Fabege's rent level, it can be concluded that it on average has been slightly lower than that of the market for the last 10 years. Unfortunately, the annual report offers no explanation for this. It is believed that this depends on the fact that many of its properties are older, and that a large part of its properties in Solna and Hammarby Sjöstad have been in the development phase. Also, in some areas, Fabege's properties are located just outside the central premises, thus lowering the rent level. Accordingly, when forecasting the expected rent level for Fabege, it is expected to be slightly lower than that of the market.

Stockholm Inner City

In Stockholm inner City and CBD, rent levels in 2016 have experienced rapid growth and reached top levels of SEK 5500/sqm and SEK 7500/sqm respectively (NPRO, 2017).

It is predicted that vacancy level will gradually decline and reach 3,5% in 2020, thereafter the vacancy is assumed increase slightly and reach a stable level of 4%. Accordingly, Fabege's rent levels are expected to increase up until 2020, with a CAGR of 4%, thereafter level out and grow along with the economy.

![CBS logo]

Figure 7.5

Rent Level

— Market rent Stockholm — Fabege rent Stockholm inner city

(x-axis: 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017 EX, 2018 EX, 2019 EX, 2020 EX, 2021 EX, 2022 EX, 2023 EX, 2024 EX, 2025 EX, 2026 EX; y-axis: 0, 2000, 4000, 6000, 8000)

Source: Own creation
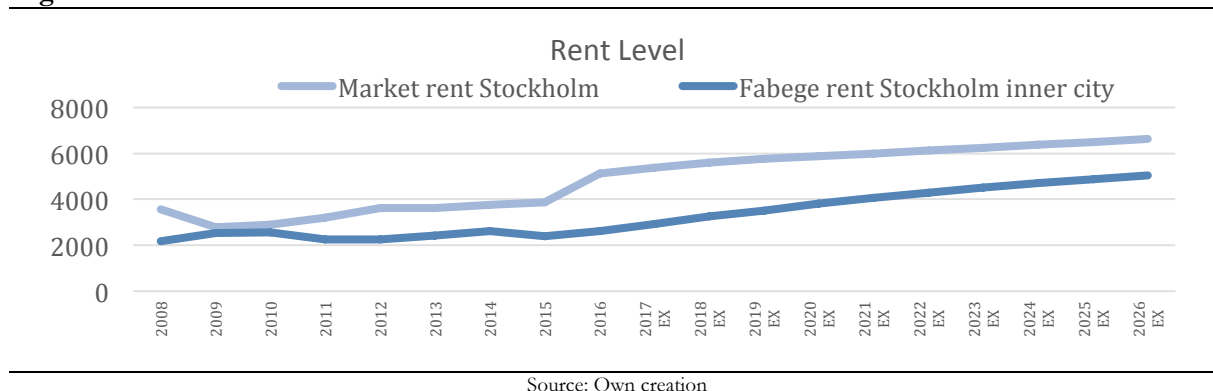
Solna

As stated, the vacancy is expected to decline more and more towards the same vacancy level that is seen in Stockholm Inner City and CBD. Since the population is growing, unemployment rate declining and the supply of office premises is limited in central Stockholm, it is fair to believe that businesses will move towards adjacent suburbs. Many companies, including Unilever, Coop, Evry and SBAB have already decided to move its head offices to Solna (Fabege, 2016). This will arguably drive up rent levels in the Solna region.

Figure 7.6

Rent Level

— Market rent Solna — Fabege rent Solna

(x-axis: 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017 EX, 2018 EX, 2019 EX, 2020 EX, 2021 EX, 2022 EX, 2023 EX, 2024 EX, 2025 EX, 2026 EX; y-axis: 0, 1000, 2000, 3000, 4000)

Source: Own creation
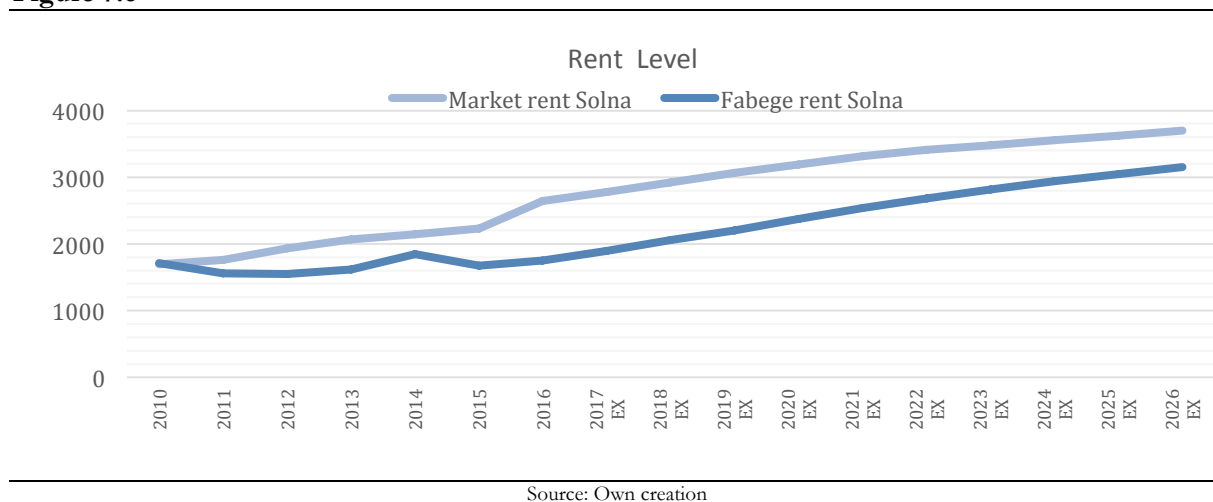
In Solna Business Park, the rent level has had a CAGR of 6% since 2009 and vacancy levels have decreased significantly. As more and more of Fabege's construction projects will reach completion in 2018 and 2019, Fabege will be able to lease out more office space, thus reduce its vacancy even more. Therefore, the rent level is expected to increase in 6% in 2017, 5% in 2018, 4% in 2019-2021 and 2% in the steady state.

Arenastaden has had a CAGR of 9% in rent level since 2009 and is, as explained above, estimated to continue to grow in a rapid pace. Fabege own 90% of all commercial properties, thus has great power to influence the development of the district. Many factors indicate that the business climate in Arenastaden

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will improve even more in following years, thus the rent level is estimated to increase 7% in 2017, 6% in 2018, 6% in 2019, 4% in 2020-21 and thereafter grow towards the inflation.

Conclusively, Fabege's rent level in Solna is calculated as a weighted average of Solna Business Park and Arenastaden. It is expected to grow up until 2022 and thereafter reach a steady state of 2%.

Hammarby Sjöstad

In this region, the vacancy has decreased continuously since 2009 and rent levels have increased with a CAGR of 7% during the same period. The business climate in Hammarby Sjöstad is expected to stay strong with decreasing vacancies and high demand. It is estimated that the rents increase 5% in 2017, 4% in 2019-2020 and thereafter decline gradually towards the inflation.

Figure 7.7

Source: Own creation
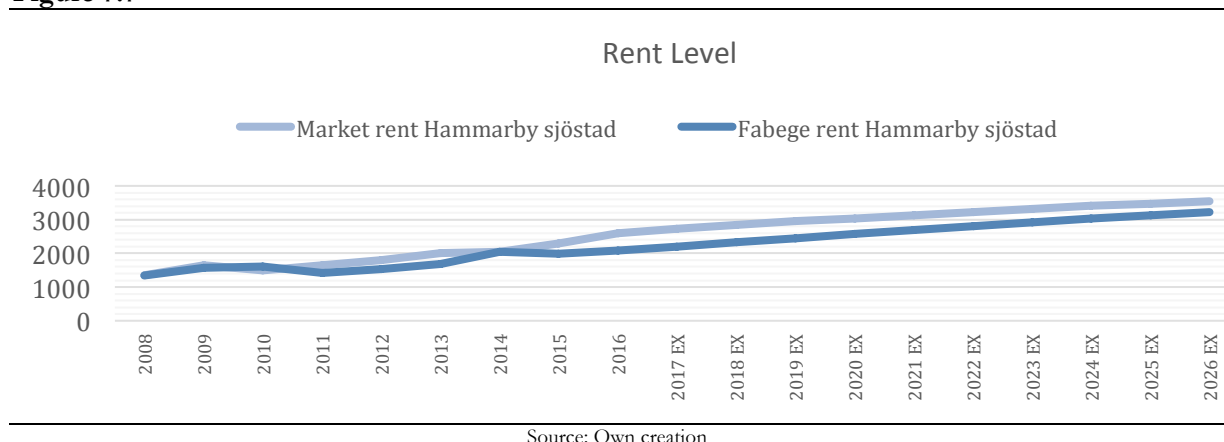
Divestments, Acquisitions and New Construction of Properties

Acquisitions & Divestments

Analyzing the total size of Fabege's property portfolio over the last 9 years, it is clear that the number of properties and total amount of square feet in its portfolio have decreased slightly. Although Fabege continuously acquire, develop and construct new properties, they have on average divested more properties than they have acquired and built (Fabege, 2016).

Historically, Fabege has divested roughly 60 000 sqm per year and acquired on average 18 000 sqm per year (Fabege, 2008-2016). However, Fabege decided in 2007 to change its strategy from owning and managing properties in all of Sweden to only focus on three specific regions in Stockholm. As of now, Fabege has divested more or less all of its properties located outside Solna, Hammarby Sjöstad and Stockholm Inner City.

It is not reasonable to believe that Fabege will continue to divest buildings in the same pace, since then there would be no properties left in its portfolio in a couple of years from now. Once Fabege have divested all of its properties outside these three regions, it seems more likely that its divestments of

properties decrease. It is therefore assumed that Fabege will only divest a constant ratio of 50% out of the amount of new properties it develops. All divestments are assumed to be in Solna and Hammarby Sjöstad.

Development of New Properties

As presented earlier, it's a long and difficult process to get approvals from the city councils for new development projects. Consequently, it becomes a difficult task to predict the amount of properties Fabege will divest, acquire and develop in the forecasted period, and in particular in the steady state period.

At current, Fabege owns 600 000 sqm of development rights that is supposed to be developed into commercial properties. However, only 350 00 sqm of the development rights have so far been approved. Given the fact that Fabege's vision is to develop an additional of 330 000 sqm of commercial properties in Solna and 20 000 sqm of commercial properties in Hammrby sjöstad (Fabege, 2016), it has been assumed that 350 000 sqm out of the total 600 000 sqm of development rights will be developed into properties. Unfortunately, there is no information in the annual report regarding the time plan for this development. However, according to the annual report, Fabege aims to invest up to SEK 2,5 billion per year in the nearest future, and thereafter reduce its investments, as they will focus more on development of existing properties. Assuming annual investments of SEK 2,5 billion, approximately 60 000 sqm (given the portfolios average rental value per sqm) of properties will be developed per year. This amount seems to be in line with the average completion of new lettable area, which has on average been approximately 60 000 sqm per year for the last 9 years (Fabege, 2016). It is therefore assumed that the total of 350 000 sqm of land will be developed into properties within 6 years, i.e. roughly 60 000 sqm/year.

Figure 7.8

Source: Own creation
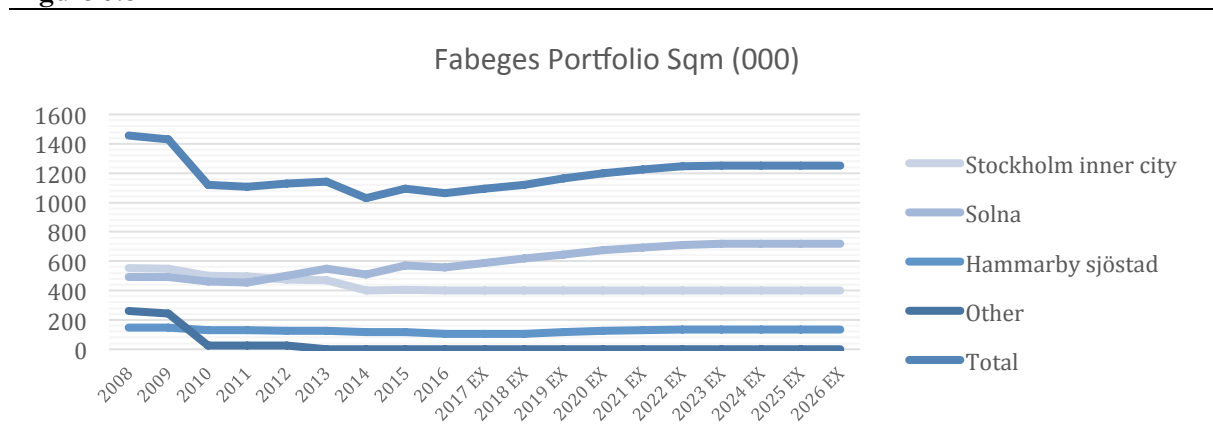
The limited space in Stockholm inner city makes it difficult for real estate companies to develop new properties in the area. That is why the development projects are assumed to be located exclusively in Solna and Hammarby Sjöstad.

In summary, Fabege is expected to continue divest properties in relation to the amount of properties it develop, however, in a slower pace than before. At the same time increase its construction of new properties as they plan to use its development rights. It is therefore estimated that Fabege's annual capital expenditures gradually increase up until 2021, thereafter, as the construction of properties decline it will reach a steady state of SEK 1 billion per year, which represents annual investments in conversions and maintenance of its existing properties.

Having analyzed the vacancy, terms of the lease contracts, the development in market rent, the risk of customers not paying rent and the expected size of Fabege's property portfolio, it is possible to calculate the predicted rental income for Fabege. The calculation is as follows:

Figure 7.9

Source: own creation
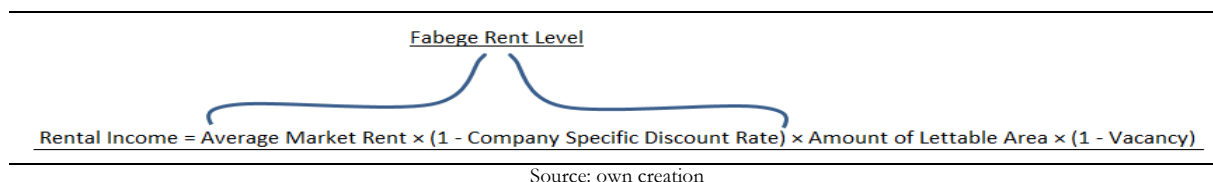
Forecasting Other Income Statement Items (2017-2021)

Operating Expenses

Maintenance, central administration, marketing and other property related costs

It is assumed that property related costs such as maintenance, marketing, tenant adaptations, property administration etc., increase along with the amount of properties in Fabege's portfolio. The market rent has increased between 7%-17% in Stockholm the last few years, which consequently have increased the operating income per square meter with an average of 3,5% per year for Fabege. During the same period of time, the operating cost per square meter have only increased 1,13% per year (Fabege, 2016).

Figure 7.10

Source: Own creation
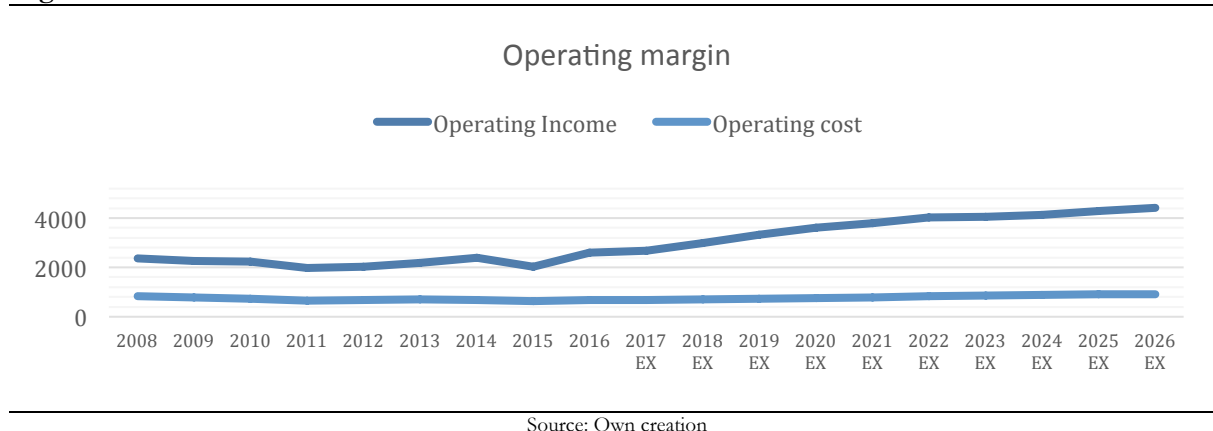
Therefore, it seems more rational to assume that property related costs follow the development of total square meter in Fabege's property portfolio, rather than the development in revenues.

This assumption is further justified by looking at the operating costs of Fabege's peer group companies, which during the same period of time also have decreased, both in absolute terms and in relation to revenues.

Based on an analysis of Fabege's historical data, which is illustrated in Appendix 7.1, it's assumed that the average property related costs is approximately SEK 600 per sqm with an average growth rate of 2 %. Since there is no indication that its maintenance costs would change during the detailed forecasting period, it's assumed to stay at SEK 600/sqm plus an annual growth rate of 2% which is assumed to be the same growth as for the economy (Appendix 5.1).

Figure 7.11

Fabege Operating cost / Operating income

Source: Own creation
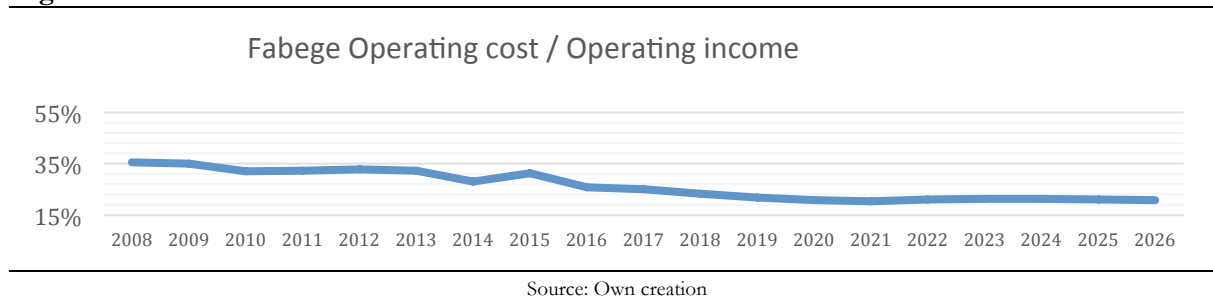
Forecasting Income Statement Items (2021-2026)

The core value drivers are estimated to remain relative stable from 2021 and onwards. The market rent and portfolio vacancy have been adjusted so it levels out toward a steady state, thus Fabege's revenues are expected to grow along with the expected GDP growth rate (2%).

However, it seems optimistic to assume that Fabege's operating margin will increase in perpetuity, therefore the expected growth for its operating costs is adjusted to SEK 600/sqm plus 2% growth, i.e. the same growth rate as for revenues. One can argue that in a longer perspective and as the company grows, the operating costs should decrease due to increased company efficiency and economies of scale. However, as concluded in the strategic analysis, no obvious economies of scale were observed for neither Fabege nor its peers. Even though the comparable companies are of different size, they have almost identical operating margins as Fabege, i.e. 66%-67%. In addition, the size of Fabege's property portfolio is not expected to grow in perpetuity, hence, any economies of scale are not expected to drive down its operating costs.

Forecasting Balance Sheet Items (2017-2021)

When forecasting balance sheet items, the stock approach is applied, which means that most of the items are estimated as a percentage of either revenues or costs (Koller et al., 2005). Exception is made when forecasting future value of investment properties, which is valued using yield predictions and the forecasted lettable area of Fabege's portfolio.

Operating Working Capital

Current Assets

Working cash

As explained in the historical analysis, working cash is estimated to constitute roughly 2% of revenues, thus the same ratio has been applied for the simplified forecast period.

Trade receivables

Information regarding Fabege's receivables is scarce, however, its historical ratio has been between 0,5%-2,5% with an average of 1,2%, which seems reasonable given that its comparable companies Huvudstaden, Platzer and Wallenstam have averages between 0,8%-1,7%. Therefore, Fabege is assumed to keep the same ratio of 1,2% throughout the detailed forecasting period.

Other receivables

With no further information regarding the future development in Fabege's receivables to associated companies, the forecast will be based on historical data. Looking at the last five years, these have on average been 2% of sales, which is line with its comparable companies, thus considered as a good estimate.

Other receivables related to sale of properties

This item has been relative large in comparison to the other current assets, much of this can be explained by Fabege's strategy to divest many of its properties outside of the Stockholm region. Since Fabege have divested almost all of its properties outside its three target regions, (Inner City, Solna and Hammarby Sjöstad), they are not expected to divest buildings in the same pace as before. Accordingly, this item is expected to decrease in the detailed forecasting period.

Prepaid expenses and accrued income

This item has remained relative stable around 2,6% of revenues the last five years and since there is no indication that this would change, it has been assumed the same for the future.

Short-term investment

There is no note in the annual report regarding this item, thus it's hard to predict its future development other than it will continue to grow in the same pace as historically, i.e. 1,17% of revenues.

Current Liabilities

Trade payables

Fabege's trade payables have remained stable during the last ten years, with an average 6,6%, which is in line with its comparable companies. There is no indication that this ratio would change.

Other liabilities

There is no note in the annual report regarding this line item. Therefore, it's assumed to maintain its historical ratio of revenues throughout the detailed forecasting section.

Tax Liabilities

Analyzing historical data, Fabege's annual tax liabilities have been approximately 0,8% of revenues, with exception for two years, 2012 and 2013. In these two years, Fabege were penalized in a tax case, concerning the misreporting of taxable profit in 2003-05, which resulted in a tax liability of SEK 1909 and SEK 1560. These two years have been excluded when calculating the historical average of tax liabilities in relation to revenues (0,8%). Fabege's tax liabilities are predicted to maintain the same ratio throughout the detailed forecasting period.

Accrued expenses and deferred income

In line with its comparable companies, this line item is estimated to maintain the same ratio in relation to revenues throughout the detailed forecasting period, i.e. 22%.

Short-term Provisions

This item relates to rental guarantees for divested buildings, which are expected to decline in following years. However, given the small size of this item, it will have an insignificant impact on the overall valuation.

Tangible Assets

Property, Plant and Equipment

Since Fabege's fixed assets consist of almost exclusively investment properties, the PPE will be insignificant in comparison to other industries. Moreover, due to the small size of PPE in the balance sheet, the forecast of this item will have a small effect on the overall valuation. Historically, the PPE/Revenue ratio has remained stable around 0,3%. Since there is no information regarding any

development in properties or equipment in the future, the ratio will remain the same throughout the detailed forecast period.

Investment properties

As illustrated below, the forecasted value of investment properties is calculated as a function of operating income, property expense and the yield. The projected yields, which are illustrated in Appendix 7.2, have been estimated based on official market reports and on the findings from the strategic analysis. The changing yield will act as a tool to estimate the value of any additional sqm of property in Fabege's portfolio.

Fabege is expected to acquire and develop more properties than it divests in following years. Any additional square meter of property in its portfolio will be valued using the formula:

$$\frac{\text{Rental income - Property related cost}}{\text{Yield}} = \text{Value property}$$

Source: Own creation

Since Fabege expects 20% return on invested capital, it has been assumed that 80% of market value of each additional square meter of investment properties in its portfolio can be interpreted as capital expenditure, i.e. the cost per square meter of developing/acquiring any additional property.

Other operating assets (net of operating liabilities)

This item consists of long-term pension plans, and other receivables that stem from the sale proceeds of properties that have been sold but not yet vacated. Since Fabege's divestments of properties is assumed to decline and ultimately expire, this item is assumed to decline in comparison to the historical period. Previously this item constituted approximately 7% of revenues but as of 2017 it is assumed to decline to 5% and maintain this ratio throughout the remaining forecasting period.

Forecasting Balance Sheet Items (2021-2026)

Fabege's operating working capital, PPL and other operating assets (net of operating liabilities) held a relative stable ratio in the detailed forecast period, and since there is no indication of any changes, it is estimated that Fabege keep the same level as in 2021 throughout the remaining forecast period. However, the item other receivables related to sale of properties will decline and ultimately vanish, as Fabege is not expected to divest any buildings after 2022. Fabege's investment properties are assumed to increase along with the development of new properties in its portfolio, which is assumed to gradually decrease until 2023, thereafter no more development projects are assumed to take place.

Terminal Period

To define the company value, the expected cash flows have been separated into two periods.

$$\text{Value} = \frac{\text{Present Value of Cash Flow}}{during \text{ Explicit Forecast Period}} + \frac{\text{Present Value of Cash Flow}}{after \text{ Explicit Forecast Period}}$$

Source: Own contribution based on (Brealey et al., 2011)

The second term refers to the continuing value period, which reflects all the expected cash flows the company receives after the explicit forecast period (Koller et al., 2005). Accordingly, a thoughtful estimation of a company's continuing value is essential as this part usually accounts for a large percentage of a company's value.

As aforementioned, it is assumed that the size of Fabege's property portfolio remains the same from 2023 and onwards. If one were to assume continuous divestments, there would be no properties left in its portfolio a couple of years from now. On the contrary, Fabege would grow to a disproportioned size if they kept on acquire buildings in the steady state period. In addition, analyzing historical data, the size of Fabege's portfolio have been almost the same for the last 10 years, with a slight decrease. Consequently, it has been assumed that no acquisitions and divestments will be made in the steady state period.

Since profits in the beginning of the forecasting period (2017-2022) are offset by large capital expenditures, the continuing value will be relative large in relation to the value of the explicit forecasting period. As the company generate a rather strong cash flow at the moment, but have decided to invest a large proportion of it into new development of properties, much of the profits will be seen in the steady state period. This does not imply that cash flows are more than 10 years out; it only means that the cash flow pattern mechanically results in the appearance that profitability is a long way off.

According to accounting standards, real estate properties are not depreciated (IFRS, 2013), arguably because they are more likely to increase in value rather than decrease. Instead, they are revalued each year by independent auditors (Koller et al., 2005). Thus, both the value of the property and the rental income generated by it, is more likely to increase rather than decrease in the long run. Accordingly, the bread and butter of a real estate company is its portfolio of assets (properties). This implicitly means, if Fabege just keep its portfolio of properties without investing in new buildings, they will still be able to capitalize on these properties many years into the future, without facing the same risk of competition as in many other industries. As a result, much of Fabege's revenues will increase in the steady state period even though the amount of properties remains the same. For the properties to stay in good shape, annual capital expenditures such as renovation, conversions and smaller extensions are estimated to be 2% of the value

of properties. This seems reasonable given the old age of many of its buildings and since Fabege strives to have top service in all of its properties (Fabege, 2008-2016).

According to economic theory, competition will eventually eliminate abnormal returns generated by the company, which implies that a company's ROIC should equal WACC in the steady state period (Koller et al., 2005). However, for companies with sustainable competitive advantage, ROIC can be set equal to the return generated by the company during the later years of the explicit forecasting period (Koller et al., 2005). In line with the discussion above, the value of properties and the rental income generated by them, seems more likely to increase rather than decrease, so even though more real estate companies enter the market, the existing properties will probably still generate more profits in the future in relation to today. Therefore, Fabege's ROIC is estimated to be 5,49% in the steady state period.

Figure 7.12

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	Terminal Period
NOPLAT	1585	1822	2021	2266	2398	2537	2475	2594	2646	2698
Invested Capital	34946	37007	39682	42110	44289	46383	47297	48227	49192	50175
ROIC	4,65%	5,21%	5,46%	5,71%	5,69%	5,73%	5,34%	5,48%	5,49%	5,49%
WACC	4,52%	4,52%	4,52%	4,52%	4,52%	4,52%	4,52%	4,52%	4,52%	4,52%

Source: Own contribution

Having completed the forecast for the detailed-, simplified- and steady state period for the balance sheet and income statement, the forecasted free cash flow and ROIC has been obtained. All calculations made are illustrated in Appendix, under section 7.

The next step is to discount the forecasted free cash flow with the company's cost of capital. All calculations and estimations related to the discount factor and the final valuation will be elaborated upon in next chapter.

Chapter 8 – Valuation

In this section, the valuation frameworks described in the theoretical chapter will be applied when calculating the estimated fair value of the Fabege stock. The discounted cash flow model will act as the foundation for estimating the company value. This includes the estimation of all components in Fabege's Weighted Average Cost of Capital (WACC).

The DCF analysis will be complemented with an EVA model, a multiple valuation, and ultimately a Monte Carlo simulation. The Monte Carlo simulation in combination with a sensitivity analysis will help analyze the risk factors that may affect the valuation result. Accordingly, this will illustrate the importance of Fabege's key value drivers and how changes in these may impact the overall valuation.

Weighted Average Cost of Capital

The company's weighted average cost of capital represents the risk faced by all of the company's investors.

$$WACC = \frac{Equity}{(Debt + Equity)} \times Cost\ of\ Equity + \frac{Debt}{(Debt + Equity)} \times Cost\ of\ Debt \times (1 - Tax\ Rate)$$

<div align="center">Source: Own creation based on (Petersen & Plenborg, 2012)</div>

As illustrated above, the formula includes several components, each of which will be calculated next.

Cost of Equity

When calculating the company's cost of equity, the Capital Asset Pricing Model has been chosen as it is the most commonly used model by practitioners (Koller et al., 2005). The model includes an estimation of the risk free interest rate, the market risk premium, and ultimately the market specific beta for the relevant company.

Risk-free Interest Rate

To estimate the risk free interest rate in developed countries, the long-term government bond is usually considered as a good estimate (Koller et al., 2005). However, the Swedish 10-year government bond is currently traded at 0,69%, which is historically amongst the lowest it has been. The average rate for the last 10 years is 2,27%, thus significantly higher.

Looking at other estimates of the long-term risk free interest rate, such as the 10-year Swedish interest rate swap offered by many European banks, it is slightly higher. The 10-year interest swap rate applied by SEB is as of March 31st, 1,2%. Looking at Nasdaq's Swedish 10-year interest rate swap (OMX SEK SWAP 10Y) which is an average of quoted mid rates from selected European banks, the average rate is 1,16% (Nasdaq, 2017).

Given the findings from the strategic analysis and the rising interest rate predictions from many experts and analysts, it is believed that the risk free rate will be better reflected in the 10-year interest rate swap rather than the 10-year government bond. Thus, assuming that the markets' pricing of the 10-year risk-free interest rate can be locked on the market today.

Accordingly, SEB's Swedish 10-year interest rate swap of 1,2%, is considered as an accurate and reliable proxy for the risk-free interest rate. As recommended, the maturity of the risk-free security is matched with the cash flow stream being valued (Koller et al., 2005).

Market Risk Premium
No single model for estimating the market risk premium has gained universal acceptance, therefore only educated guesses and assumptions can be made about the specific market risk premium (Brealey et al., 2011). Brealey et al., (2011) analyzed the U.S stock market and concluded that the market risk premium varies continually between 4,5% and 5,5%. Whereas Koller et al., (2005) argues that the market risk premium should be in the range of 5-8%. However, both of these studies are based on the US stock market, and since Fabege operates on the Swedish stock market and has foremost Swedish investors (Fabege, 2016), a risk premium estimated for the Swedish stock market is believed to better reflect the risk faced by Fabege's investors.

Previous research of the Swedish stock market has concluded that the market risk premium between 1937-1987 was 8,9%. More recent studies argues that the risk premium for the Swedish market is 5,5%. Whereas a study made by PWC in 2016, state that the market risk premium for the Stockholm stock exchange is 6,5%. (PWC, 2016b)

Although it's possible to investigate several other studies arguing for different risk premiums, there is no clear evidence that one is better than the other; hence it serves little purpose.

Therefore, the most recent study of the risk premium for the Swedish stock market made by PWC in 2016 is considered a good estimate. In line with theory, PWC's study compares the average market return on the Stockholm stock exchange with that of long-term risk free interest rate. In addition, the study is based on a period of 20 years, which is deemed long enough to be considered as relevant. Shorter periods will make it harder to observe trend lines, and also they tend to be more cyclical (Koller et al., 2005).

Estimating Beta
Raw Beta
As recommended, five years of monthly data (60 observations) have been used to calculate Fabege's raw beta. A regression analysis of the historical returns of Fabege with the return of market portfolio (MSCI) as explanatory variable resulted in a raw beta of 0,96 for Fabege. According to theory, company stocks should be regressed against a regional, well-diversified, value-weighted portfolio rather than a local market

portfolio (Koller et al., 2005). Therefore, the return of the MSCI Euro index has been used as market portfolio for the regression analysis. However, the regression's R-squared was only 39% and the standard error of the beta estimate was 0,04. In order to improve the estimate of beta, using an industry rather than company specific beta is recommended (Koller et al., 2005).

Unlevered Industry Beta

Companies in the same industry face the same operating risk and should therefore have the same operating betas. However, in order to make a fair comparison of beta across an industry, the effect of companies' different leverage must be taken into account. Having stripped out the effect of leverage of Fabege and its three peers, as illustrated in Appendix 8.1, the estimated unlevered industry beta was 0,44. Relevering this beta with the target capital structure of 50% debt and 50% equity, Fabege's relevered beta becomes 0,88. The regressions made for Fabege and its peers can be found in appendix. 8.1.1 and 8.1.2.

With only a few comparable companies it's hard to make a fair estimation of the unlevered industry beta. Since the average unlevered industry beta was calculated using only four companies with rather different capital structures, it is believed that smoothing of beta will improve the estimation. Moreover, since all betas revert towards the mean in the long run, smoothing will account for this effect (Blume, 1975). Having used the model developed by Blume (1975) for beta smoothing, the estimated equity beta for Fabege is 0,92.

As was established in the strategic analysis, the real estate industry is expected to move somewhat along with the economy, thus it seems reasonable with an equity beta of 0,92. Accordingly, it will be used in the following WACC formula.

Cost of debt

As argued in the theoretical section, the best estimate of a company's' cost of debt is the interest cost of the most recently issued long-term bond by the company itself. However, for companies with only short-term bonds or bonds that rarely trade, the cost of debt should be calculated using an indirect method instead (Koller et al., 2005).

At first, the company's credit rating on long-term debt must be estimated. Since there is no publicity available credit rating for Fabege, a synthetic credit rating has been calculated. This is done by using Damodaran's (2016a) synthetic rating of companies' debt. Given Fabege's current interest costs (SEK 574 millions), adjusted EBIT (SEK 1,928 billions) and the estimated long-term risk free interest rate of 1,2%, Fabege's credit rating is estimated to be AA. Therefore, Fabege's yield spread above the risk free interest rate is assumed to be 1,15% (Damodaran, 2016). Consequently, Fabege's pre-tax cost of debt is believed to be equal to the interest rate on the 10-year Swedish interest rate swap issued by SEB (1,2%) plus the borrowing premium of 1,15%, totaling 2,35%.

Capital Structure

By analyzing the chart, it's evident that Fabege's debt to value ratio has decreased in each consecutive year since 2011. Fabege's debt to value ratio as of 2016 was 49%, and its target debt to value ratio stated by the company is set to be no more than 55%.

Figure 8.1
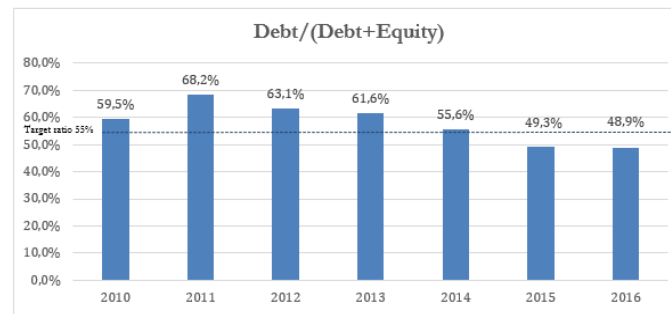
Source: Own creation based on (Fabege, 2008-2016) and data from (Thomson Reuters, 2017)

The market value of equity of SEK 23,6 billion has been calculated by multiplying the number of outstanding shares with the current stock price at the cut of date of 31st of March 2017.

Figure 8.2

Fabege 31.03.2017		Number of Shares	Share Price (SEK)
Market Value Equity (SEK)	23.568.299.010	165.391.572	142,5
Market Value Debt (SEK)	22.594.715.000		
Equity/ (Debt+ Equity)	51%		
Debt / (Debt + Equity)	49%		

Source: Own creation based on information from (Thomson Reuters, 2017)

If publicity traded, the market value of debt should ideally be estimated by multiplying the quantity of each security with the current price (Koller et al., 2005). However, since the majority of Fabege's debt is not publicity traded in the market, there is no decisive way to calculate the market value of debt. In that case, it is recommended to use the book value of debt as a proxy for the market value. According to Koller et al (2005), the book value should reasonably approximate the current market value.

Fabege's market value of debt is estimated at SEK 22,54 billion. Accordingly, the debt to value ratio is 49% (22,54 ÷ (23,95 + 23,57)).

One can argue that a company's capital structure should always be set to a level in which it maximizes shareholder value. Since Fabege's DTV-ratio the last two years have remained relative stable, it is assumed to reflect a sound capital structure for the company. As interest rates are expected to rise, it's seems unreasonable that Fabege will increase its DTV-ratio in following years. Therefore, a DTV-ratio of 50% seems reasonable and will be used as a target capital structure for the company.

Calculating WACC

Having estimated the cost of debt and cost of equity, as well as the relevant capital structure for Fabege, it is possible to calculate the Weighted Average Cost of Capital. The WACC for Fabege represents the true risk of the company and its cash flows, and the relevant data has been summarized in figure below.

Figure 8.3

Risk Free Rate	1,20%
Borrowing Premium	1,15%
Market Risk Premium	6,50%
Beta	0,92
Debt / (Debt + Equity)	50%
Equity / (Debt + Equity)	50%
Cost of Equity	7,20%
Cost of Debt (Pre-tax)	2,35%
Corporate Tax Rate	22%
WACC	**4,52%**

Source: Own Contribution

Calculating Continuing Value

To estimate the present value of cash flow after the explicit forecast period, i.e. year 2026 and onwards, the Growing Perpetuity Formula have been applied. The formula calculates the continuing value, which represents the cash flows generated by the company from year 2026 into perpetuity. The formula is as follows:

$$\frac{FCF_{t-1}}{WACC - g} = Continuing\ Value$$

Source: Own creation based on (Koller et al., 2005)

Since a steady state is assumed, the same proportion of NOPLAT is invested each year, resulting in the same annual growth in the FCFs. Fabege is expected to have a continuing growth factor (g) of 2%, which is in line with the historical average growth of the Swedish economy (Appendix 5.1). This is reasonable since no company can expect to generate abnormal returns and outer perform the market over a long period of time. Since Fabege is a local company, with properties only located in Sweden, it is foremost affected by the Swedish economy. Thus, the average historical GDP-growth in Sweden is assumed to be a better proxy than for instance a global GDP-growth rate.

The model also assumes that the ROIC remain stable at the same level as the last year of the explicit forecast period, in this case 5,55%. As discussed in the forecasting section, Fabege's ROIC is believed to be higher than its cost of capital, implying more or less that Fabege's properties continues to be profitable in the future.

Ultimately, the continuing value along with the present value of the FCF in the forecasting period is adjusted with the mid-year factor as follows.

$$Mid\ Year\ Adjustment\ Factor = PV\ FCFs \times (1 + WACC)^{\frac{6}{12}} - PV\ FCFs$$

Since cash flows in reality are received continuously throughout the year instead of a lump sum in the end of each year, the mid-year adjustment factor will account for the time value of money (Koller et al., 2005)

Discounted Cash Flow Valuation

Having forecasted all free cash flows in both the explicit forecast period and the terminal period, as well as discounted them with the estimated WACC for the company, it's possible to conclude the valuation of Fabege. The table below provides a summary of the calculations to end up with the estimated value of Fabege's share, finalizing at SEK 171,4, which can be compared to the actual market price of SEK 142,5 the same day, i.e. 31st of March 2017. Thus, it is believed that Fabege's share is undervalued with a potential upside of 20,3%. All calculations made to derive the estimated share price are illustrated in Appendix 7.8

Figure 8.3

Enterprise DCF-Model Summary	
Growth Rate in Perpetuity	2%
WACC	4,52%
Present Value Free Cash Flows Explicit Forecast Period	3739
Present Value Perpetuity Value	45816
Mid Year Adjustment	1106
Enterprise Value	**50661**
Value of Non Operating Assets	276
Non Equity Claims	-22595
Equity Value	**28342**
Number of Shares (000000)	165,392
Price per Share 31.03.2017 (SEK)	**171,4**

Source: Own creation

Economic Value Added Valuation

As illustrated in the equation below, the EVA-Valuation has been calculated using the initial invested capital plus the present value of all future EVA's. Accordingly, the enterprise value has been calculated using following formula:

$$\text{Enterprise Value} = Invested\ Capital + \sum_{t=1}^{\infty} \frac{EVAt}{(1+WACC)^{\wedge}t}$$

Source; Own contribution based on (Petersen & Plenborg, 2012)

Where the EVA equals; *EVA t = NOPLAT t - (WACC ×Invested Capital t-1)*

By the result it can be concluded that Fabege's value is positively affected by higher future EVAs and a lower WACC.

Figure 8.4

EVA Model	2016	2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	Terminal Value
NOPLAT	1839	1585	1822	2021	2266	2398	2537		2475	2594	2646	2698
Invested Capital	34100	34946	37007	39682	42110	44289	46383		47297	48227	49192	50175
WACC	4,52%	4,52%	4,52%	4,52%	4,52%	4,52%	4,52%		4,52%	4,52%	4,52%	4,52%
Cost Inv Cap		1540	1578	1671	1792	1901	2000		2034	2135	2177	2221
Economic Value Added (EVA)		45	245	350	475	496	537		380	458	468	477
PV Economic Value Added		43	224	307	398	398	412		279	322	315	12758
Sum PV EVAs	15455											
Initial Investment	34100											
Mid Year Adjustment	1106											
Enterprise Value	**50661**											
Value of Non-Operating Asset	276											
Non Equity Claims	22595											
Equity Value	**28342**											
Price Per Share	**171,4**											

Source: Own creation

Because the EVA-model use NOPLAT (equal to NOPAT), which remain positive each year in the forecast period, as oppose to free cash flows in the DCF-model, which are negative from year to year, the company will have a positive present value in each year. Yet, the DCF-model and the EVA-model yields identical results, i.e. an estimated equity value of mSEK 28342 and a share price of SEK 171,4. Accordingly, the EVA-model can be used as a sanity check to ensure that there is consistency in the assumptions behind the calculated NOPLAT and Invested Capital. Moreover, the EVA-model is valuable in that sense that it illustrates the actual profitability of the company, i.e. the returns generated above the company's cost of invested capital.

Multiple Valuation.

To test if the DCF valuation has provided reliable results comparable to similar traded stocks in the market, a multiple valuation has been conducted. Ideally, the multiple valuation will add value to the analysis since it enables a comparison to the outcome of the DCF. Since the DCF is very dependent on its inputs, a multiples analysis may prove useful. In addition to this, a well conducted multiple analysis may provide further insight in to what drives value in the industry (Koller et al., 2005).

Koller et al (2005) suggests that the focus should be on ratios of enterprise value, and that non-operating

items should be excluded. Considering this, the emphasis in this section will be on the ratios enterprise value over EBITDA and enterprise value over revenue.

According to Koller et al., (2005), predicted future multiple values tend to yield better results and are preferred if possible. Accordingly, future consensus estimates from Bloomberg have been used to calculate the multiples. Even though predicted multiples are preferred, it should be emphasized that future estimates are only estimates based on different opinions and assumptions. The consensus estimates from Bloomberg are in addition to this, based on a relative small sample of expert opinions for this specific peer group. To avoid biases, multiples based on historical data are also considered.

Since Hufvudstaden and Wallenstam are considered the most similar companies based on the property holdings and the capital structure, the focus will be on the comparison between Fabege and these two. Platzer has significantly higher debt to value ratio, and significantly lower consensus estimates for EV/EBITDA. The low multiple for Platzer is considered to be a result of its less attractive locations of properties. Since Platzer's properties are located in Gothenburg, which tend to have higher yields than Stockholm, its properties are considered to be riskier. In addition to this, Platzer have a higher DTV-ratio than the other peers, which means that it has a capital structure that entails more risk. Accordingly, investors should expect higher revenues and EBITDA in relation to the EV. As a result, the consensus estimates excluding Platzer is believed to provide a more accurate comparison.

Figure 8.5

EV/EBITDA	2017	2018
EBITDA (DCF)	1711	1985
Av. peers consensus	25,4	23,9
Value based on multiple	43403	47473
Av. Peers consensus exc Platzer	29,2	27,5
Value based on multiple	50052	54511

Source: Own creation based on (Bloomberg , 2017)

The average consensus estimate from Hufvudstaden and Wallenstam, in combination with the predicted EBITDA for Fabege, suggests an Enterprise value of approximately bSEK 54 511 based on the 2018 ratio and bSEK 50 052 based on the 2017 estimates.

The estimates differ depending on which peer companies that are included, and between which years that are considered. However, they are all within a reasonable range from 50 973, which is the enterprise value derived from the DCF. Including Platzer, the values become lower, ranging from bSEK 43 403 (2017) to 47 743 (2018). The findings are similar when using the EV over revenue multiple.

Figure 8.6

EV/Revenue	2017	2018
Revenue (DCF)	2384	2682
Av. peers consensus	18,3	17,4
Value based on multiple	43699	46597
Av. Peers consensus exc Platzer	21,5	20,3
Value based on multiple	51346	54496

Source: Own creation based on (Bloomberg , 2017)

As illustrated in figure 8.7, the multiples calculated on historical data has increased over the last years. Compared to previous years, the stocks are now traded at higher EV/EBITDA and EV/revenue multiples. This could be explained by an optimistic market outlook, which not yet has been reflected in EBITDA and revenue, thus the high multiples. The high multiples could also be explained by the fact that the previous years high growth in market rent, has not yet been reflected in the revenues since lease contracts are on generally renegotiated every fourth year. Thus, the full effect in revenues is still to be seen.

The historical ratios show that Fabege has been, and still is traded at similar ratios of EV over revenue compared to Hufvudstaden and Wallenstam. For EV over EBITDA, the ratio is very close to Hufvudstaden, however Wallenstams ratio is significantly higher. This is most likely related to Wallenstams low margins, if believed that the costs are temporarily high, this could explain the high ratio.

Figure 8.7

EV / EBITDA	2011	2012	2013	2014	2015	2016
Fabege	21,5	24,1	22,8	25,2	32,2	31,8
Hufvudstaden	24,8	24,9	24,3	27,2	30,8	32,3
Platzer			20,1	22,1	22,7	27,3
Wallenstam	23,6	24,5	26,4	27,2	39,2	38,6

EV / revenue	2011	2012	2013	2014	2015	2016
Fabege	13,9	15,4	14,9	17,1	22,0	21,7
Hufvudstaden	16,1	16,9	16,6	18,4	20,6	22,0
Platzer			13,6	15,3	15,5	18,5
Wallenstam	12,9	14,0	15,0	16,4	23,8	23,6

Source: Own creation based on annual reports and (Thomson Reuters, 2017)

Sensitivity Analysis

It has earlier been acknowledged that the inputs in the DCF model, and especially the interpretation of the inputs are indeed subjective. Since the DCF model is based on multiple assumptions and estimates, and since it is impossible to perfectly predict the future based on historical data, it becomes interesting to analyze the inherent uncertainty in these inputs, and to see how sensitive the DCF- model is to changes in some of the most imperative variables.

At first, this section provides an analysis of how changes in WACC and the perpetuity growth-rate impact the estimated share price of Fabege. A sensitivity analysis can be done by changing the inputs in the DCF-model. Excels table function enables a simple way to display the different outcomes given different inputs. Unlike WACC, the growth in market rent and the level of vacancy are not constant throughout the years, but instead estimated based on the prediction of several other factors. Therefore, a Monte Carlo simulation is applied to better account for the risk and uncertainties inherent in these inputs.

It is believed that the Monte Carlo simulation will reveal more about the underlying risk and uncertainty in some of the most influential factors for a real estate company, i.e. the level of vacancy and growth in market rent.

WACC and Perpetuity Growth Rate

The chart below displays the different outcome for share price depending on the WACC (on the horizontal axis) and the perpetuity growth rate (on the vertical axis).

Figure 8.8

	3,02%	3,52%	4,02%	4,52%	5,02%	5,52%	6,02%
1,25%	332	220	148	99	63	36	14
1,50%	411	265	177	119	78	47	23
1,75%	520	323	213	143	95	59	32
2,0%	684	400	257	171	114	74	43
2,25%	955	508	314	206	137	90	55
2,50%	1489	668	389	249	165	109	69
2,75%	3030	933	495	305	199	132	86

Source: Own creation

It becomes evident that both WACC and the perpetuity growth rate have a large impact on the estimated share price. Everything else equal, a 0,5% lower WACC would increase the share price with 50%, which equals a share price of SEK 257, meanwhile a 0,5% higher WACC would lower the estimated share price to SEK 114.

The effect of change in the perpetuity growth rate is almost as significant, a 0,5% increase in the perpetuity growth rate would boost the estimated share price from SEK 171 to SEK 249, while a 0,5% lower perpetuity growth rate would result in a share price of SEK 119. One explanation for the high sensitivity to changes in WACC and perpetuity growth rate is that a significant portion of the cash flows

are offset by large investments in the first 5 years, and will therefore only be available in the distant future when the capital expenditures level out and the operating margin increase. Since most of the value is generated in the terminal period, small changes in the inputs will have a large impact on the overall value of the company.

To get a more precise understanding of the inputs and its effect on the share price, the WACC has been decomposed to see how changes in risk free rate and the borrowing premium impact the value. The risk free rate impacts the WACC through both the cost of debt and the cost of equity, while the borrowing premium only affect the cost of debt.

Risk Free Rate and Borrowing Premium

The chart below displays how a different risk free rate (on the horizontal axis) and a different borrowing premium (on the vertical axis) will change the estimated share price.

Figure 8.9

171,4	-0,30%	0,20%	0,70%	1,20%	1,70%	2,20%	2,70%
0,55%	747	451	299	207	145	100	67
0,75%	677	418	280	194	136	94	62
0,95%	616	388	262	182	127	87	57
1,15%	564	361	246	171	120	81	52
1,35%	518	336	230	161	112	76	48
1,55%	477	314	216	151	105	70	44
1,75%	441	293	203	142	98	65	40

Source: Own creation

Not surprisingly, the risk free rate has a larger effect on the share price since it effects both the cost of debt and the cost of equity. Nonetheless, small changes in the borrowing premium will also impact the share price considerably. However, a 0,5% lower risk free rate will increase the share price from SEK 171 to SEK 246, which is almost the same change as a 0,5% lower WACC would cause. Therefore, it is concluded that the risk free rate has a significant impact on the WACC, thereby the overall value of the company.

Monte Carlo Simulation

Monte Carlo simulations have proved useful for valuations by providing a way to examine risk in a broader picture, which is more related to reality in which a large number of possible outcomes are possible. A Monte Carlo analysis can however be complex with multiple obstacles and pitfalls that needs to be avoided in order to create a value adding- and not a misleading model. Damodaran (2016c) suggests a four step process to follow when doing a Monte Carlo simulation. First the "Probabilistic" variables need to be determined, thereafter probability distribution must be defined and adjustments for correlation must be considered, and finally, the simulation can be performed. (Damodaran, 2016c)

Determining the probabilistic variables

Multiple variable can be included in the model simultaneously, however, it makes sense to focus on the variables that has significant impact on the outcome of the valuation (Damodaran, 2016c). In the case of Fabege, there are two variables of specific interest.

First and foremost, the increase in market rent becomes interesting since it is considered to be on of the main drives for revenue. As concluded in the strategic analysis, the location tends to be the major factor determining the rent for a property. As a result, the local market rent has a large impact on the rent level Fabege is able to reach when renegotiating contracts (Fabege, 2016). The future rent levels for the different areas where Fabege operates are indeed difficult to predict. Partly because of the large amount of different factors impacting, but also due to the unpredictability of the variables and the difficulty in quantifying them. Thus creating uncertainty.

The same goes for vacancy, which also is affected by a multitude of different variables. Vacancy is to some extent a result of the market characteristics, but can also drastically change if major tenants decide not to prolong their contracts. As discussed in the strategic analysis, there are a few companies that together make up for a significant share of the revenues, which can cause this effect. As a result, it becomes hard to be precise when predicting the future vacancy.

Determining probability distributions

Defining the probability distributions for the variables in the model is known to be the most difficult part of a Monte Carlo simulation. The choice of distribution for the inputs is key to the outcome of the model. For variables with reliable historical data, this can be used. However, to do so, there should be long historical data available and no structural shifts in the market that could make the data unreliable. If such data is not available, cross sectional data can also be used. Cross sectional data is substitute data that is assumed to be a good indicator of the uncertainty variable. Finally, if neither of those are available or not

reliable, which is common, statistical distributions and parameters can also be used. In such case the distribution that best captures the variability is used. Picking the best suited parameters and distribution is still difficult since the inputs seldom match statistical requirements, yet one needs to settle for a distribution that is considered good enough. (Damodaran, 2016c)

The change in market rent has showed to differ a lot from year to year, and also between the three areas in which Fabege operates. It is hard to find a pattern in the change in market rent from year to year, which makes it difficult to select a suitable distribution for the variable. If a longer period of data were available, the best estimation would arguably have been to do a regression of the two variables against their historical deviations.

However, due to a lack of historical data, the best estimate is believed to be the predictions made in the forecasting section.

This section aims to add value to the analysis by indicating a range of possible outcomes for the estimated share price of Fabege. In order to do so, and also making sure that the results will be reliable, a triangular distribution has been selected. The triangular distribution is not necessarily the distribution that best reflects the reality, but it seems more intuitive than the bell curve. The range tested for, is based on the historical movement in market rent growth as well as the findings from the strategic analysis.

The same logic applies for the vacancy. Since the strategic analysis is believed to be a good prediction of future vacancy, the Monte Carlo simulation aims to show the possibility of deviations from the predicted vacancy level. To do so, triangular distributions are used, following the same reasoning as when selecting the distribution for market rent growth.

The uniform distribution has been used to simulate vacancy in previous studies, with the max and min based on historical data (Hoesli et al., 2006). In this study however, the triangular distribution is believed to better reflect the potential future outcomes. It is assumed that a uniform distribution based on historical data, would overstate the risk since the future estimates is believed to fluctuate less. As with market rent, it is important to consider that the distributions are selected based on reasoning on what is expected for the future, and not historical data. Yet, it is believed that the model adds value to the analysis by showing multiple potential outcomes, given the uncertainty.

Example of distribution

As explained above, all distributions in this Monte Carlo are triangular. However, the distributions for vacancy differ slightly from the distributions for market rent growth. This is because the vacancy has different characteristics compared to the growth in market rent, which can be traced back to the discussion given in the strategic analysis chapter.

As illustrated in the figure 8.10, the left triangle is symmetric while the triangle to the right is skewed. The line in the middle is the projected rate for the specific area and year. In this case, regarding Stockholm inner city 2017. The increase in market rent is estimated at 5% and the vacancy is estimated at 4,5%. This number will always be the same as in the original DCF model. In contrast to the deterministic DCF-model, the potential for deviation from the estimated value is taken into consideration. Regarding growth in market rent to the left in the figure below, it is estimated that the deviation is 10 percentage points in each direction. The interpretation is that it is believed that market rent will at the most grow 15%, and can potentially decrease as much 5% from 2016 to 2017. Furthermore, the random number will be selected based on the distribution, i.e. the area of the triangle.

The same logic is applied to the triangle to the right, representing the vacancy for Fabege in the inner city 2017. The difference is however, that this triangle distribution is skewed. It is argued that the vacancy can potentially increase 4 percentage points, even though it's unlikely. On the other hand, a similar decrease of 4 percentage points is not deemed as likely, instead the lowest vacancy for Fabege's properties in 2017 is believed to be 2,5%. The estimates for each area and for each year, will be elaborated upon below.

Figure 8.10

| Distribution for growth in market rent 2017 Stockholm inner city | Distribution for vacancy Stockholm inner city 2017 |
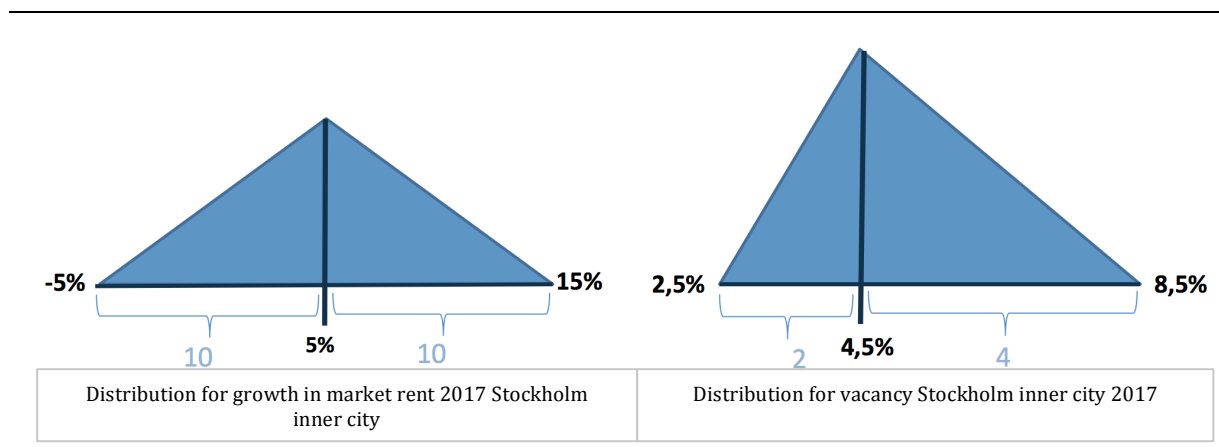
Source: Own creation *not symmetric

Distribution Market Growth Rate

As illustrated in figure 8.11, the triangular distribution is based on the estimates from the original DCF, with an added min- and a max limit of 10 percentage points from the center.

The graph to the right illustrates the predicted growth in market rent, which was estimated in the forecasting section, hence, the possible values for each area will be +/- 10 percentage points from this line.

Figure 8.11

Source: Own creation * not symmetric   Source: Own creation
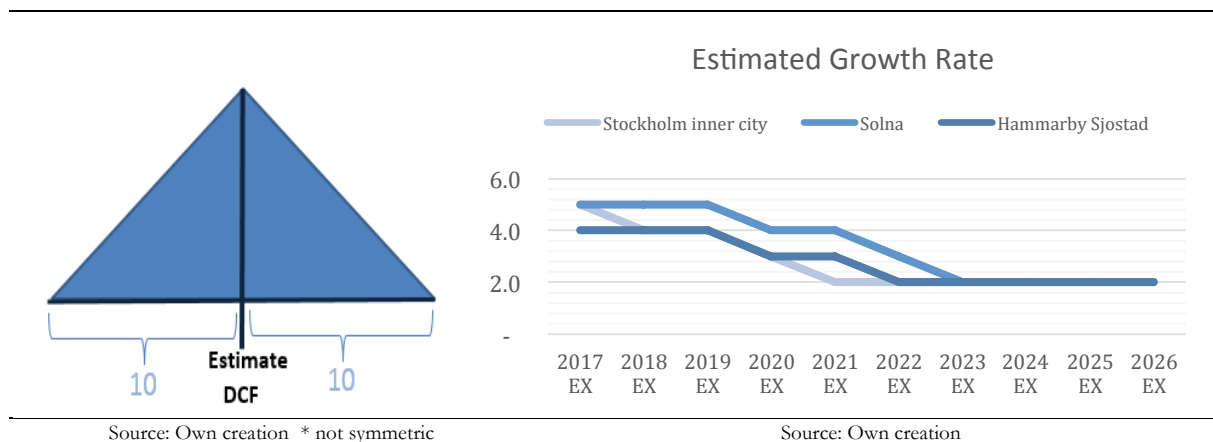
The range of +/- 10 percentage points is selected based on the strategic analysis chapter and the forecasting chapter. As aforementioned, it is assumed that the demand will remain high, especially due to the expected increase in population in Stockholm and the limited supply of office space. With the extreame increase in market rent in 2016, it seems more reasonable with more modest changes ahead. It is ofcourse not impossible with extreme changes, which could be an argument for using a bell curve instead. Still, the triangular distribution is assumed to be a good proxy for the changes in market growth rate.

Distribution vacancy

Given the predicted future developments in Fabege's three focus areas, Solna, Hammarby Sjöstad and Stockholm Inner City, which was concluded in the forecasting chapter, following distributions of vacancy levels is assumed.

Stockholm Inner City:

- Centered at: DCF vacancy

- Max: DCF vacancy + 4 percentage points

- Min: DCF value – 2 Percentage points

- Exception: not under 2% vacancy

Solna:

- Centered at: DCF vacancy

- Max: DCF vacancy + 5 percentage points

- Min: DCF value -3 Percentage points

- Exception: not under 2% vacancy

Hammarby Sjöstad

- Centered at: DCF vacancy

- Max: DCF vacancy + 5 percentage points

- Min: DCF value – 3 Percentage points

- Exception: not under 2% vacancy

Correlation

Adjusting for correlation is important since it would be misleading to simulate two inputs in the same model without taking into account how they affect each other. There are two ways to handle correlation, either the correlation needs to be built in to the model or only one of the variables should be simulated. (Damodaran, 2016c)

Correlation Market Rent Growth and Vacancy

As elaborated on in the strategic analysis, there is likely a negative correlation between market rent and vacancy since both are affected by the supply and demand characteristic of the market, as well as the global and local economic circumstances, however this is hard to measure due to a lack of historical data. When plotting vacancy and market rent growth together for the available years of data, it can be seen that the general trend is that the vacancy decreases when the increase in market rent is high. Which suggests that there is a negative correlation. However, the historical results would not necessarily be a good proxy for the future. This is because the vacancy cannot go below zero, while there is no upper limit for the growth in market rent. In addition, all of Fabege's areas are reaching minimal vacancy levels, which limits further decrease.

Correlation Between Areas

In addition to this, there is an obvious correlation between the different areas in both vacancy and rent. To handle this, the market growth for all areas are based on the same random variable for each year. Yet, the outcomes will still differ due to the difference in the distributions. The equivalent is done for vacancy.

Running the Simulation

When running the simulation, the number of simulations needs to be decided. The number of simulations should be determined by the number of inputs that are changed to distributions, the diversity of the distribution, and the range of outcomes (Damodaran, 2016c)

Given the characteristics of the simulation, with only two simulated inputs (growth in market rent and vacancy) 1000 simulations are assumed to be enough. The choice of 1000 simulations is also a result of the simulation being done in excel, without add ins.

The model is set up to distribute random numbers given each specific distribution. As mentioned before, the simulations are based on a triangular distribution for vacancy and market growth rate for the explicit years, for each region. By combining the formula for random sampling from a triangular distribution (also known as the inverse CDF transformation technique) with a uniform random distribution, it becomes possible to get random values based on triangular distributions (Kotz & Rene van Dorp, 2004). This formula and the probability density function for triangular distribution can be found in section 8.2 in Appendix, together with the outcome on 1000 simulations to test the distribution for one of the years. Further more, for the uniform distribution, excels formula: =rand() is used.

If the simulation is done once, the market growth rate for every year in the explicit forecast gets a value based on its own distribution. The same thing will happen for the vacancy. The new inputs will result in different revenues, which finally results in a share price. Every time excel is updated, new simulations are made for each distribution. This process is done 1000 times, which results in 1000 different share prices.

The Monte Carlo simulation is performed three times, one with distributions for both market rent and vacancy, one with distributions only for market rent growth, and finally one only with distributions only for vacancy.

Results

The Monte Carlo simulations generated a mean share price, which was slightly lower than the estimated share price, SEK 161,9 vs. SEK 171,4. This is not surprising since the distribution for vacancy has been skewed towards higher vacancy. Compared to the estimated stock price in the DCF (SEK 171,4), approximately 45% of the outcome show a higher value, while approximately 55% is lower. However, to put it in perspective to the stock price as of the cut of date, less than one third of the outcomes represent a value less than SEK 145. The 5% percentile shows that only 5% of the values are under SEK 102. If the risk related to the estimated growth in market rent and vacancy would be the only two uncertainties, this model shows limited downside of owning the stock.

Figure 8.12

Percentile	5%	10%	50%	90%	95%
SEK	102	114	164	222	237
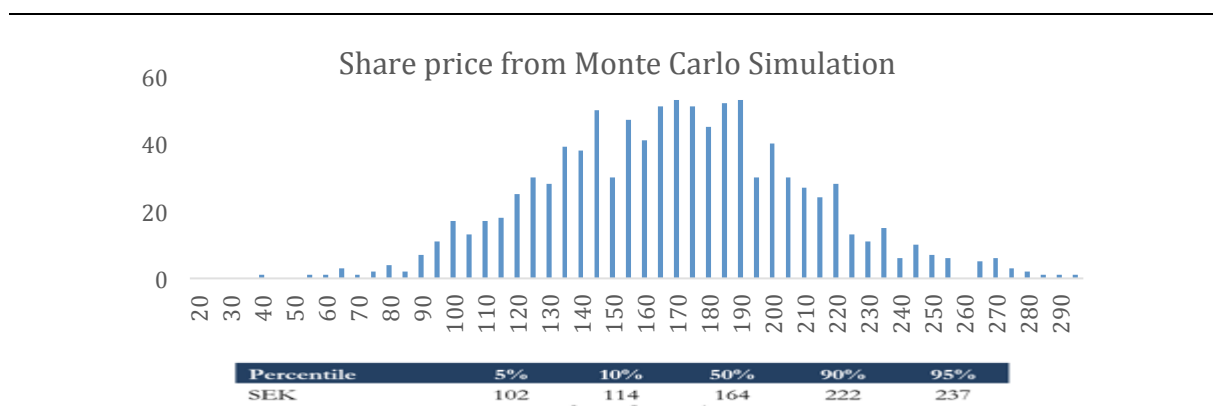
Source: Own creation

When simulating market rent growth separately from vacancy, it becomes clear that it is the growth in market rent that causes the majority of the high spread of potential outcomes.

The model based on only simulations of market rent growth has a similar distribution to the first model, which included both variables (growth in market rent and vacancy). The whole distribution tends to be shifted slightly to the right with higher values for the calculated percentiles. The average value for this simulation is SEK 170.

Figure 8.13

Percentile	5%	10%	50%	90%	95%
SEK	107	121	168	224	241

Percentile	5%	10%	50%	90%	95%
SEK	150	153	166	175	177
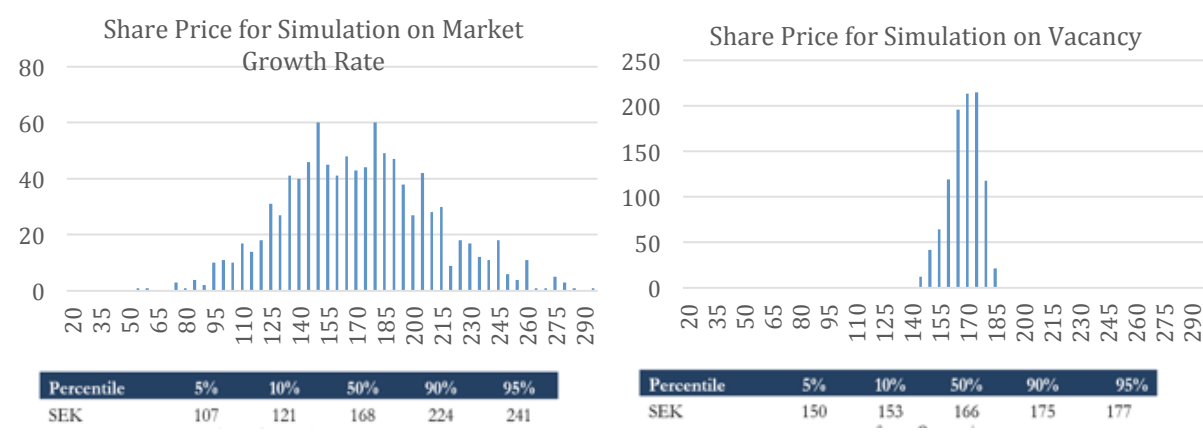
Source: Own contribution

The simulation where only the vacancy is simulated shows a very different result from the two other simulations. All the estimated values of Fabege's share price, generated by the simulation are within the range of SEK 142 to SEK 184, with an average of SEK 165, which is lower than the estimated share price which was given in the standard DCF-valuation (SEK 171,4).

Conclusively, the Monte Carlo simulation has revealed more about the underlying risk and uncertainty in two of the most important input variables in the DCF-valuation, i.e., growth in market rent and the level of vacancy. Analyzing the results, it can be determined that the growth in market rent has a significantly larger impact on revenue than the level of vacancy. In addition, the Monte Carlo simulation increased the reliability of the estimated share price of SEK 171, 4, by providing a set of different outcomes which, given its distributions, averaged around SEK 161, 9.

Chapter 9 - Conclusion

The purpose of this thesis has been to undertake a fundamental analysis of the Swedish real estate company Fabege, in order to deduct the fair value of its share as of March 31st 2017.

The thriving economy with strong growth in GDP and employment rate, along with all-time low interest rates, has boosted the Swedish real estate market in recent years, resulting in tremendous growth in rent prices and occupancy rates. This has in its turn sparked the debate of an overheated property market and the risk of a real estate bubble.

Although many analysts and experts believe in rising interest rates and increased governmental regulation of the property market, the strategic analysis concluded that the demand for commercial properties is believed to stay strong in coming years. This is justified by arguing that Stockholm is predicted to have a tremendous growth in population (50% increase until 2030), along with an increasing employment rate, which consequently will increase the demand for office space.

With an expected continuous strong demand and a shortage in supply of commercial properties, the market rent and occupancy rates are expected to continue to increase in following years.

The strategic analysis concluded that one of Fabege's core strengths lies in its property management, i.e. the management of its large portfolio of attractive properties, located in Stockholm and its adjacent suburbs. Although Fabege is believed to be the most concentrated player in the market, in regards to geographical location (exclusively Stockholm) and property type (98% commercial properties), the concentration risk is assumed to be mitigated by the fact that Stockholm is the largest property market in Sweden with an attractive growth-potential.

With the majority of its properties located in areas which has had, and is expected to keep low vacancy levels, the level of competitiveness and rivalry among existing players becomes small. Accordingly, Fabege's large portfolio of assets is expected to generate a stable stream of revenue without the obvious threat of competition.

Fabege's other business area, property development, is also expected to become more profitable in coming years, as more and more of its development projects will reach completion.

The very limited space for office premises in central Stockholm, along with the continuous strong demand has contributed to high market rents reaching record-levels of 7500/sqm in CBD. Consequently, many companies have chosen to relocate its offices to adjacent suburbs instead. Since Fabege put a lot of focus on property development and has 350 000 sqm of development rights in the adjacent suburbs Solna and Hammarby Sjöstad, they are well positioned to capitalize on the predicted growth in these areas. Although

property development is considered to be riskier than property management since the outcome is more uncertain, many of Fabege's development projects are already fully let, which significantly reduces the risk.

In the financial analysis, some corrections were deemed necessary to ensure comparability with its peers. Analyzing Fabege and its peers, it's obvious that the majority of its revenues stem from unrealized changes in value of properties. Since these revenues are unrealized, they do not entail any actual inflow of cash, instead it is an accounting based income. It is believed that by excluding this item, the revenues generated from operations will be better reflected. Adjusting for unrealized value changes, Fabege still show a stable revenue stream, which stem primarily from rental income.

The ROIC and operating margin has increased slightly in recent years, which is believed to be an effect of favorable market conditions with rising market rents. Worth noting, as lease contracts are renegotiated every fourth year on average, the full effect of the steep market rent development is still to be seen. Although Fabege have a stable revenue stream from its core operations, its free cash flows are negative from year to year. However, by analyzing its peers, negative cash flows from year to year is assumed to be part of the nature of the industry, where cash flows are offset by large capital expenditures and a negative working capital.

Due to the appearance of negative cash flows, a financial risk analysis was used to evaluate both the long- and short term liquidity risk. Even though it was concluded that Fabege have a negative interest coverage ratio in some years, which implies that its cash flows are not sufficient to pay off its financial expenses, it can be explained by a number of large property acquisitions made in those years. Thus, the high capital expenditures in those years are not considered to be business requirements but instead a result of an abnormal investment activity.

The findings from the strategic- and financial analysis enabled a forecast prediction for the coming ten years, split into detailed- and simplified projection. The key value driver is believed to be the rental income, which is primarily dependent on the market rent and the vacancy level, but also the size of the property portfolio. Accordingly, each one of these variables were explicitly forecasted for the entire forecast period, resulting in a predicted increase in revenues. Moreover, Fabege's capital expenditures are expected to gradually decline in coming years since they will have developed all of its developments rights by 2023, and thereafter focus solely on development of existing properties, which is assumed to require less investments. Consequently, a lot of the expected cash flows will first be seen in the perpetuity period.

The actual valuation was performed by using two well-established models, the DCF- and the EVA-model. Both models yield the same result, i.e. an equity value of bSEK 28,342 and a share price of SEK 171,4. To

improve the reliability and accuracy of these results, a lot of emphasis was given to the sensitivity- and risk analysis.

Since the key value driver - rental income, is affected by a numerous of other factors which interact in a rather complex fashion, it becomes very difficult to accurately forecast the predicted rental income for Fabege. Since these estimates entails a lot of inherent uncertainty, a Monte Carlo simulation is used to account for these uncertainties.

The Monte Carlo Simulation is incorporated in the DCF-model, but instead of using only static values as inputs, the variables that are believed to be the most important (vacancy-level and growth in market rent) are estimated as probability distributions. Analyzing the results from the simulation, it can be determined that the market rent has a significantly larger impact on the profitability for Fabege than the level of vacancy. Small deviations in the predicted growth in market rent will have a relatively large impact on the overall valuation. Still, accounting for the uncertainty in the predicted growth in market rent, and the level of vacancy, the estimated fair share price of SEK 171,4 seems reasonable given the generated probability distribution by the Monte Carlo simulation.

Conclusively, it is believed that the estimated fair value of Fabege's share price as of the 31st of March 2017 is SEK 171,4. Since the actual stock price as of the same date was SEK 142,5, it can be concluded that Fabege's stock is undervalued and has an uplift potential of 20,3%.

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Appendix

Appendix 5.1- Historical GDP growth Sweden (average 2%)
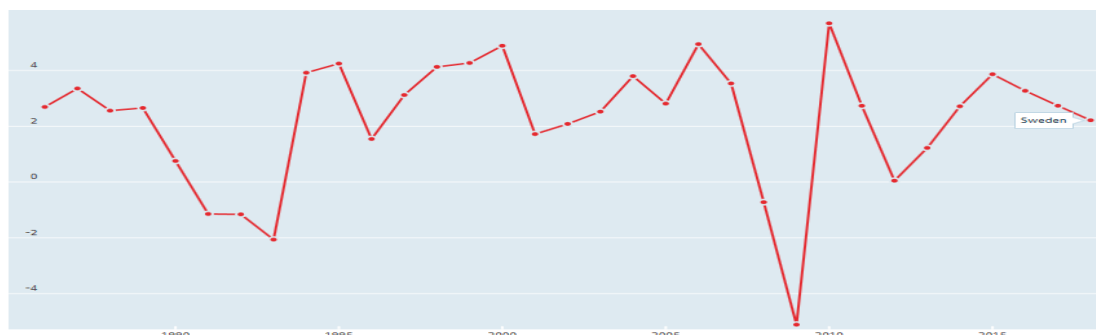
Source: (OECD, 2017)

6.1 Analytical Income Statement

Analytical Income Statement	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rental income	2214	2194	2007	1804	1869	2059	2087	1998	2105
Realised changes in value, investment properties	143	57	237	173	167	135	300	21	491
Operating Income	2357	2251	2244	1977	2036	2194	2387	2019	2596
Operating expenses, maintaenance and tenant customisations	-474	-435	-374	-301	-310	-331	-299	-269	-258
Property tax	-137	-130	-138	-129	-139	-152	-145	-142	-161
Ground rent	-42	-37	-34	-29	-28	-35	-28	-23	-23
VAT expense	-26	-22	-15	-13	-13	-13	-11	-8	-9
Property/project admin and lettings	-97	-105	-98	-105	-115	-117	-119	-127	-147
Central administration and marketing	-60	-62	-62	-63	-64	-62	-67	-65	-70
Operating Costs	-836	-791	-721	-640	-669	-710	-669	-634	-668
Operating Profit	1521	1460	1523	1337	1367	1484	1718	1385	1928
EBITDA	1521	1460	1523	1337	1367	1484	1718	1385	1928
EBIT	1521	1460	1523	1337	1367	1484	1718	1385	1928
TAX	-28	460	125	255	1945	350	96	374	89
NOPLAT	1549	1000	1398	1082	-578	1134	1622	1011	1839

own creation

6.2 Reorganized Balance Sheet

TOTAL EQUITY AND LIABILITIES	2008	2009	2010	2011	2012	2013	2014	2015	2016
ASSETS									
Investment properties	31056	31048	27981	29069	30146	31155	28991	33459	33408
Equipment	3	2	3	1	1	1	1	1	2
Interests in associated companies	21	307	443	531	810	778	630	217	106
Receivables from associated companies	59 -		81	261	248	413	335	421	138
Other long-term securities holdings	82	122	152	165	183	353	285	7	12
Deferred tax	244	99	0	0	0	0	0	0	0
Other non-current receivables	180	92	38	107	157	39	292	280	260
Total non-current assets	31645	31670	28698	30134	31545	32739	30534	34385	33926
Trade receivables	42	19	18	15	30	16	12	13	14
Other receivables	149	136	65	98	183	48	136	32	0
Other receivables related to sale of properties	148	431	1372	201	212	243	1595	273	1537
Prepaid expenses and accrued income	43	58	43	48	43	58	56	66	136
Short-term investment	0	0	0	0	0	0	34	70	114
Working cash	44,28	43,88	40,14	36,08	37,38	41,18	41,74	39,96	42,1
Excess cash	9,72	129,12	32,86	37,32	162,62	56,82	-18,74	-7,96	19,9
Total current assets	442	877	1577	436	674	463	1816	546	1863
TOTAL ASSETS	32087	32547	30275	30630	32219	33202	32450	34931	35789
EQUITY AND LIABILITIES									
Total shareholders' equity	5036	5036	5037	5037	5037	5037	5037	5037	5037
Other contributed capital	3017	3017	3017	3017	3017	3017	3017	3017	3017
Translation services	0	0	0	0	0	0	0	0	0
Retained earnings	2872	3197	3882	3690	2166	2736	2924	3084	3667
Total shareholders' equity	10985,4	11309,87	11935,579	11804,038	10279,605	10850,185	11037,77	11198,205	11781,285
Liabilities to credit institutions	17925	16254	10828	13521	11385	16830	12480	14009	14520
Convertible debentures	47 -		0	0	0	0	0	0	0
Derivatives	471	373	267	664	854	447	920	658	559
Deferred tax liabilities	433	514	444	395	222	395	35	248	58
Provision related to rental guarantees on divested	338	275	109	65	36	35	42	37	104
Provision related to pension	80	81	82	83	84	100	113	107	110
Total long-term liabilities	19353,6	17497,13	11730,421	14727,962	12581,395	17806,815	13650,24	15058,795	15350,715
Liabilities to credit institutions	930	2855	5818	3234	6650	2208	7071	7059	7458
Trade payables	91	89	82	151	176	147	58	328	104
Tax liabilities	25	10	6	17	0	3	5	3	86
Tax liability attributed to tax case	0	0	0	0	1909	1560	0	0	0
Provisions	146	83	80	47	23	25	11	5	1
Other liabilities	92	245	97	181	107	76	114	160	436
Accrued expenses and deferred income	464	458	466	468	493	526	503	501	572
Total current liabilities	1748	3740	6543	4098	9358	4545	7762	8056	8657
TOTAL EQUITY AND LIABILITIES	32087	32547	30275	30630	32219	33202	32450	34313	35789

own creation

6.3 Net interest bearing debt

NIBD	2008	2009	2010	2011	2012	2013	2014	2015	2016
Liabilities to credit institutions	17925	16254	10828	13521	11385	16830	12480	14009	14520
Convertible debentures	47 -		0	0	0	0	0	0	0
Derivatives	471	373	267	664	854	447	920	658	559
Deferred tax liabilities	432,6	514,13	444,421	394,962	222,395	394,815	35,235	247,795	57,715
Liabilities to credit institutions	930	2855	5818	3234	6650	2208	7071	7059	7458
	19805,6	19996,13	17357,421	17813,962	19111,395	19879,815	20566,235	21973,795	22594,715
Interests in associated compar	21	307	443	531	810	778	630	217	106
Receivables from associated c	59 -		81	261	248	413	335	421	138
Other long-term securities holc	82	122	152	165	183	353	285	7	12
Deferred tax	244	99	0	0	0	0	0	0	0
Excess cash	9,72	129,12	32,86	37,32	162,62	56,82	-18,74	-7,96	19,9
	415,72	657,12	708,86	1054,32	1403,62	1600,82	1231,26	637,04	275,9
NIBD	19389,88	19339,01	16648,561	16759,042	17707,775	18278,995	19334,975	21336,755	22318,815

own creation

6.4 Tax Calculations

Tax calculations	2008	2009	2010	2011	2012	2013	2014	2015	2016
Tax rate	28%	26,3%	26,3%	26,3%	26,3%	22%	22%	22%	22%
Tax on profit for the year	829	-255	-232	-276	-2120	-462	-129	-1001	-1573
Tax shield interest expense	-234,32	-149,31	-139,127	-163,849	-175,684	-161,7	-151,58	-134,86	-126,28
Tax shield interest income	5,88	1,052	0,526	0,263	0,263	0,66	0,44	0,22	0,22
Tax shield share in profit / loss in associated comp	-2,24	-1,315	4,734	2,367	36,031	-6,6	-15,84	-20,68	-93,5
Tax sheild from other securities	4	2	1	3	6	6	5	7	6
tax on non operating income									
Unrealized Changes in Value, Investment Propertic	-433	-82	222	287	371	163	295	715	1675
Unrealised changes in value, fixed income derivativ	-136	26	28	-104	-50	90	-104	58	22
Change value equity	-6	-1	-10	-4	-12	21	4	2	1
Tax operations	28	-460	-125	-255	-1945	-350	-96	-374	-89
decrease / increase in deferred taxes	-580	0	152	238	198	335	-5	868	1485
	608	-460	-277	-493	-2143	-685	-91	-1242	-1574

own creation

6.5 Adjustments to Balance Sheet due to Unrealized Value Changes

Adjustments to balance sheet due to unrealized value changes	2008	2009	2010	2011	2012	2013	2014	2015	2016
Tax rate	28%	26,3%	26,3%	26,3%	26,3%	22%	22%	22%	22%
Unrealized Changes in Value, Investment Properties	-1545	-310	843	1093	1409	739	1339	3252	7614
Retained earnings	-1112	-228	621	806	1038	576	1044	2537	5939
Deferred tax	-433	-82	222	287	371	163	295	715	1675
Accumulated Retained earnings	-1112	-1341	-720	86	1124	1701	2745	5282	11221
Accumulated Deffered tax	-433	-514	-292	-5	366	528	823	1538	3213

Source: Own creation

6.5.1 Adjusted Value Investment Properties

Adjusted Value Investment Properties	2008	2009	2010	2011	2012	2013	2014	2015	2016
Initial Value Investment Properties	29511	29133	26969	29150	31636	33384	32559	40279	47842
Unrealized Changes in Value, Investment Properties	-1545	-310	843	1093	1409	739	1339	3252	7614
Accumulated Unrealized Changes in Value	-1545	-1855	-1012	81	1490	2229	3568	6820	14434
Adjusted Value Investment Properties	31056	31048	27981	29069	30146	31155	28991	33459	33408

Source: Own creation

6.5.2 Adjustment to the item Deferred tax liabilities as a result of unrealized value changes

Adjusted Deferred Tax Liabilities	2008	2009	2010	2011	2012	2013	2014	2015	2016
Deferred Tax Liabilities	0	0	152	390	588	923	918	1786	3271
Accumulated Deffered tax	433	514	292	5	-366	-528	-823	-1538	-3213
Adjusted Deferred Tax Liabilities	433	514	444	395	222	395	95	248	58

Source: Own creation

6.6 Historical Invested Capital & Total Funds Invested

Historical Invested Capital (mSEK)

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Trade receivables	42	19	18	15	30	16	12	13	14
Other receivables	149	136	65	98	183	48	196	92	0
Prepaid expenses and accrued income	49	58	49	48	49	58	56	66	136
Short-term investment	0	0	0	0	0	0	34	70	114
Working cash	44	44	40	36	37	41	42	40	42
Other receivables related to sale of properties	148	491	1372	201	212	243	1595	273	1537
Operating current assets	432	748	1544	398	511	406	1935	554	1843
Trade payables	91	89	82	151	176	147	58	328	104
Tax liabilities	25	10	6	17	0	3	5	3	86
Provisions	146	83	80	47	23	25	11	5	1
Other liabilities	92	245	97	181	107	76	114	160	436
Accrued expenses and deferred income	464	458	466	468	493	526	503	501	572
Operating non-interest bearing debt	818	885	731	864	799	777	691	997	1199
Operating working capital	-386	-137	813	-466	-288	-371	1244	-443	644
Net PPE	3	2	3	1	1	1	1	1	2
Net investment properties	31056	31048	27981	29069	30146	31155	28991	33459	33408
Other operating assets (net of operating liabilities)	-298	-264	-153	-41	37	-96	137	136	46
Invested Capital	**30375**	**30649**	**28644**	**28563**	**29896**	**30689**	**30373**	**33153**	**34100**
Interests in associated companies	21	307	443	591	810	778	630	217	106
Receivables from associated companies	59	0	81	261	248	413	335	421	138
Other long-term securities holdings	82	122	152	165	183	353	285	7	12
Deferred tax	244	99	0	0	0	0	0	0	0
Excess cash	10	129	33	38	163	57	-19	-8	20
Non-operating assets	416	657	709	1055	1404	1601	1231	637	276
Total funds invested	**30791**	**31306**	**29353**	**29618**	**31300**	**32290**	**31604**	**33790**	**34376**

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Liabilities to credit institutions	17925	16254	10828	13521	11385	16830	12480	14009	14520
Short-term liabilities to credit institutions	930	2855	5818	3234	6650	2208	7071	7059	7458
Convertible debentures	47	0	0	0	0	0	0	0	0
Derivatives	471	373	267	664	854	447	920	658	559
Deferred tax liabilities	433	514	444	395	222	395	95	248	58
Tax liability attributed to tax case	0	0	0	0	1909	1560	0	0	0
Other non-current liabilities	0	0	0	0	0	0	0	619	0
Debt and debt equivalents	19806	19996	17357	17814	21020	21440	20566	22593	22595
Total shareholders' equity	5096	5096	5097	5097	5097	5097	5097	5097	5097
Other contributed capital	3017	3017	3017	3017	3017	3017	3017	3017	3017
Retained earnings	2872	3197	3882	3690	2166	2736	2924	3084	3667
Equity and equity equivalents	10985	11310	11996	11804	10280	10850	11038	11198	11781
Total funds invested	**30791**	**31306**	**29353**	**29618**	**31300**	**32290**	**31604**	**33791**	**34376**

Source: Own creation

6.7 Operating Working Capital & and Smoothening for current assets due to large sale proceeds

Adjusted working capital, (smoothing from large sale proceeds)

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Accounts recivables	42	19	18	15	30	16	12	13	14
correction workin cash	44,28	43,88	40,14	36,08	37,38	41,18	41,74	39,96	42,1
Other receivables	149	136	65	98	183	48	196	92	0
Other recivables Non operating (related to sale of subsidary)	148	491	250	201	212	243	250	273	250
Prepaid expenses and accrued income	49	58	49	48	49	58	56	66	136
Short-term investment	0	0	0	0	0	0	34	70	114
current assets	432,28	747,88	422,14	398,08	511,38	406,18	589,74	553,96	556,1
Non interest bearing debt	818	885	731	864	799	777	691	997	1199
Working cap	-385,72	-137,12	-308,86	-465,92	-287,62	-370,82	-101,26	-443,04	-642,9
% of revenues	-16%	-6%	-14%	-24%	-14%	-17%	-4%	-22%	-25%

Operating working capital	2008	2009	2010	2011	2012	2013	2014	2015	2016
Trade recceivables	42	19	18	15	30	16	12	13	14
Other receivables	149	136	65	98	183	48	196	92	0
Other receivables related to sale of properties	148	491	1372	201	212	243	1595	273	1537
Prepaid expenses and accrued income	49	58	49	48	49	58	56	66	136
Short-term investment	0	0	0	0	0	0	34	70	114
Working cash	44,28	43,88	40,14	36,08	37,38	41,18	41,74	39,96	42,1
Operating current assets	432,28	747,88	1544,14	398,08	511,38	406,18	1934,74	553,96	1843,1
Trade payables	91	89	82	151	176	147	58	328	104
Tax liabilities	25	10	6	17	0	3	5	3	86
Provisions	146	83	80	47	23	25	11	5	1
Other liabilities	92	245	97	181	107	76	114	160	436
Accrued expenses and deferred income	464	458	466	468	493	526	503	501	572
Operating non-interest bearing debt	818	885	731	864	799	777	691	997	1199
Operating working capital	-385,72	-137,12	813,14	-465,92	-287,62	-370,82	1243,74	-443,04	644,1
Change in working capital		-248,6	-950,26	1279,06	-178,3	83,2	-1614,56	1686,78	-1087,14

Source: own creation

Fabege and Peers

6.8 Tax Calculations

Fabege

Tax rate	26,3%	26,3%	22%	22%	22%	22%
Tax calculations	2011	2012	2013	2014	2015	2016
Tax on profit for the year	-276	-2120	-462	-129	-1001	-1573
Adjustment for tax case		1900				
Tax shield interest expense	-163,849	-175,684	-161,7	-151,58	-134,86	-126,28
Tax shield interest income	0,263	0,263	0,66	0,44	0,22	0,22
Tax shield share in profit / loss in associated companies	2,367	36,031	-6,6	-15,84	-20,68	-93,5
Tax shield from other secureties	3,419	6,049	5,94	5,06	6,6	5,72
Tax on non operating income						
Tax on gain sale inv properties	45,499	43,921	29,7	66	4,62	108,02
Unrealized Changes in Value, Investment Properties	287,459	370,567	162,58	294,58	715,44	1675,08
Unrealised changes in value, fixed income derivatives	-104,411	-49,97	89,76	-104,06	57,64	21,78
Change value equity	-4,208	-12,361	21,12	4,18	2,2	1,1
Tax operations	-209,461	-1,18	-320,54	-30,22	-369,82	19,14

Hufvudstaden

Tax rate	26,3%	26,3%	22%	22%	22%	22%
TAX	2011	2012	2013	2014	2015	2016
Tax on profit for the year	-521	453,8	-530,5	-519,2	-978,5	-1163,7
Tax sheild interest expense	-35,5839	-43,395	-29,986	-29,37	-27,324	-31,108
Tax shield interest income	3,419	1,1309	1,87	0,792	0,264	0,066
Tax shield share in profit / loss in associated companies						
Tax on gain sale inv properties						
Tax shield from other secureties						
Change value inv properties	327,1457	163,2178	298,738	375,892	753,83	915,222
Change value derivatives	-26,0896	-6,6802	13,112	-40,876	2,596	9,988
change value equity						
Tax operations	-251,8458	568,0735	-246,766	-212,762	-249,134	-269,532

Platzer

Tax rate	0,263	0,263	0,22	0,22	0,22	0,22
TAX	2011	2012	2013	2014	2015	2016
Tax on profit for the year	-21,1	-26,3	-71,2	-86,7	-176,4	-135,1
Tax sheild interest expense	-26,5104	-34,111	-33,242	-33,858	-29,964	-31,834
tax shield interest income	0,3156	0,4997	0,352	0,814	0,11	0,088
tax shield share in profit / loss ii.						
tax on gain sale inv properties	0	0,6838	3,608	0	1,716	0
tax sheild from other secureties						
tax on non operating income						
unrealized change value inv prop	16,6216	27,7465	22,11	88,176	110,418	99,088
unrealized change value derivativ	-14,6754	-14,412	17,996	-50,05	14,08	-30,25
change value equity						
Tax operations	-45,3486	-45,894	-60,376	-81,618	-80,128	-98,074

Wallenstam

Tax rate	0,263	0,263	0,22	0,22	0,22	0,22
TAX	2011	2012	2013	2014	2015	2016
Tax on profit for the year	-187	326	-23	-45	-664	-850
Tax sheild interest expense	-123,61	-128,344	-102,96	-80,3	-63,8	-56,54
Tax shield interest income	9,731	10,783	9,9	3,74	4,4	1,76
Tax shield share in other businesses or profit	-13,15	-6,312	-1,1	-5,5	-7,48	-13,42
Tax on gain sale in co-op	5,786	2,104	0,88	49,72	46,42	5,06
Tax on gain sale investment properties	9,205	47,34	14,74	51,04	39,16	37,4
Tax on unrealized change value inv propertie	223,287	315,074	133,1	182,38	551,54	763,4
Tax on unrealized change value derivatives	-88,631	-24,722	72,16	-187,88	36,3	-28,6
Tax on Unrealized changes in value, syntheti	-0,789	-5,26	-5,06	-4,4	-6,82	-1,54
Tax on Impairment losses on non-current ass	0	-26,3	-33	-77	-55	0
Tax operations	-165,171	510,363	65,66	-113,2	-119,28	-142,48

Source: own creation

6.9 Operating Working Capital

Fabege

Operating working capital	2011	2012	2013	2014	2015	2016
Trade receivables	15	30	16	12	13	14
Other receivables	98	183	48	196	92	0
Prepaid expenses and accrued income	48	49	58	56	66	136
Short-term investment	0	0	0	34	70	114
Working cash	36,08	37,38	41,18	41,74	39,96	42,1
Operating current assets	197,08	299,38	163,18	339,74	280,96	306,1
Trade payables	151	176	147	58	328	104
Tax liabilities	17	0	3	5	3	86
Other liabilities	181	107	76	114	160	436
Accrued expenses and deferred income	468	493	526	503	501	572
Operating non-interest bearing debt	817	776	752	680	992	1198
Operating working capital	-619,92	-476,62	-588,82	-340,26	-711,04	-891,9
Change in working capital		143,3	-112,2	248,56	-370,78	-180,86

Hufvudstaden

Operating Working capital	2011	2012	2013	2014	2015	2016
Accounts receivable	8,7	11,2	13,4	14,6	20,6	15,2
Prepaid tax	22,7	49,9	10,6	56,7	31,6 –	
Other receivables	25,8	1	1,1	0,6	23,8	2,5
Prepaid expense and accrued income	28,2	25	27,8	36,4	45,2	41,5
short term placements	320	150 –	–	–	–	
Operative liquidity	28,746	30,834	32,808	33,306	33,78	35,798
Operative current assets	434,146	267,934	85,708	141,606	154,98	94,998
Accounts payable	67,2	78,5	89,4	89,3	102,5	87,4
Income tax liability	0 –	–	–	–		15,2
Other liabilities	86,9	82,7	98,4	90,1	108,8	157,7
Accrued expenses and prepaid income	312	286,8	320,3	355,6	394,9	389,6
Noninterest bearing debt	466,1	448	508,1	535	606,2	649,9
Operating working capital	-31,954	-180,066	-422,392	-393,394	-451,22	-554,902
Change in working capital	0	-148,112	-242,326	28,998	-57,826	-103,682

Platzer

Operating Working capital	2011	2012	2013	2014	2015	2016
Accounts receivable	12,4	2,3	5,2	3,5	16,5	9,9
Prepaid tax	—	0,7 —	0	0	0	0
Other receivables	14,4	12,9	7,7	10,2	27,2	23,7
Prepaid expense and accrued inc	6,6	3,7	16,3	12,5	12,3	32,4
short term placings	0	0	0	0	0	0
Operative liquidity	6,594	7,686	9,284	10,498	11,782	13,742
operating current assets	39,994	27,286	38,484	36,698	67,782	79,742
Accounts payable	10,9	15,2	16,3	15,2	23,6	39,4
Tax liability	11,3 —		8,8	11,4	27,2	42,9
Other liabilities	4,8	2,2	11,9	8,5	21,5	24,4
Accrued expenses and prepaid i	94,6	117,9	140,5	114,9	153,6	203,7
noninterest bearing debt	121,6	135,3	177,5	150	225,9	310,4
operating working capital	-81,606	-108,01	-139,016	-113,302	-158,118	-230,658
change in working capital	0	-26,408	-31,002	25,714	-44,816	-72,54

Wallenstam

Operating Working capital	2011	2012	2013	2014	2015	2016
Intangible assets	23	49	58	69	100	89
Trade receivables	18	17	18	19	16	26
Prepaid tax	0	0	0	0	0	0
Other receivables	220	231	192	19	408	102
Prepaid expense and accrued income	62	95	80	90	69	55
Participations in properties	52	188	47	25	28	15
Operative liquidity	30,64	31,52	31,56	31,32	30,98	32,14
operating current assets	405,64	611,52	426,56	253,32	651,98	319,14
Accounts payable	144	182	179	152	166	134
Tax liability	0	0	0	0	0	0
Other liabilities	42	180	37	107	170	37
Accrued expenses and prepaid income	354	318	345	337	321	333
noninterest bearing debt	540	680	561	596	657	504
operating working capital	-134,36	-68,48	-134,44	-342,68	-5,02	-184,86
change in working capital	0	65,88	-65,96	-208,24	337,66	-179,84

Source: own creation

6.10 CAPEX

Fabege

Operating capital expenditures for peer valuation	2011	2012	2013	2014	2015	2016
Change Value - realised and unrealised value changes	0	-1077	-1009	2164	-4468	51
change value inventories	0	0	0	0	0	-1
CAPEX	0	-1077	-1009	2164	-4468	50

Hufvudstaden

Capital expenditures	2011	2012	2013	2014	2015	2016
Change in adjusted value properties		-185,7	-1453,7	-239,7	-496,6	-616,7
Change value inventories	0	1,3	-1,2	-1,5	-0,4	0,8
Change other operating assets (Net of operating li	0	-0,1	36,5	-37	-0,4	-0,4
CAPEX	0	-184,5	-1418,4	-278,2	-497,4	-616,3

Platzer

CAPITAL EXPENDITURE	2011	2012	2013	2014	2015	2016
Change in adjusted value properties		-1481,7	-721,3	-1029,6	-939,5	-3379,7
Change value inventoires	0	0,1	-2,9	0	1,1	-1,1
Change other operating assets (n	0	9E-16	-0,1	0	0	0
CAPEX		-1481,6	-724,3	-1029,6	-938,4	-3380,8

Wallenstam

CAPITAL EXPENDITURES	2011	2012	2013	2014	2015	2016
Change in adjusted value properties		-186	206	427	-1102	-995
Change capitalized expenses		1	1	0	-7	-1
Change wind turbines		-358	-76	212	404	89
Change equipment	0	3	-1	-6	1	1
Change other operating assets (net of operat	0	34	-1	35	-116	-35
CAPEX		-506	129	668	-820	-941

Source: own creation

6.11 Noplat & free cash flow

Fabege

NOPLAT & FREE CASH FLOW	2011	2012	2013	2014	2015	2016
Rental income	1804	1869	2059	2087	1998	2105
Operating Income	1804	1869	2059	2087	1998	2105
Operating expenses, maintaenance and tenant customisations	-301	-310	-331	-299	-269	-258
Property tax	-129	-139	-152	-145	-142	-161
Ground rent	-29	-28	-35	-28	-23	-23
VAT expense	-13	-13	-13	-11	-8	-9
Property/project admin and lettings	-105	-115	-117	-119	-127	-147
Central administration and marketing	-63	-64	-62	-67	-65	-70
Operating Costs	-640	-669	-710	-669	-634	-668
Operating Profit	1164	1200	1349	1418	1364	1437
EBITDA	1164	1200	1349	1418	1364	1437
EBIT	1164	1200	1349	1418	1364	1437
TAX	209,461	1,184	320,54	30,22	369,82	-19,14
NOPLAT	954,539	1198,816	1028,46	1387,78	994,18	1456,14
Change in working capital	0	-143,3	112,2	-248,56	370,78	180,86
Capital expenditures	0	-1077	-1009	2164	-4468	50
Free cash flow	0	-21,484	131,66	3303,22	-3103,04	1687

Hufvudstaden

NOPLAT & FREE CASH FLOW	2011	2012	2013	2014	2015	2016
Rental income	1437,3	1541,7	1640,4	1665,3	1689	1789,9
operating income	1437,3	1541,7	1640,4	1665,3	1689	1789,9
Maintenance	-46,8	-35,5	-32	-31,9	-34,4	-29
Operations and administration	-236,1	-227,1	-237,8	-248,6	-256,5	-262,2
Ground rents	-15,5	-16,3	-16,1	-17	-21,5	-21,8
Property tax	-126,1	-128,2	-152,2	-154,2	-154,1	-164,5
Central administration	-31,7	-34,1	-35,7	-36,2	-38,8	-42,9
Parking operations, costs	-48,2	-49,4	-49,7	-49,8	-50,4	-50
Operating cost	-504,4	-490,6	-523,5	-537,7	-555,7	-570,4
Operating profit	932,9	1051,1	1116,9	1127,6	1133,3	1219,5
EBITDA	932,9	1051,1	1116,9	1127,6	1133,3	1219,5
EBIT	932,9	1051,1	1116,9	1127,6	1133,3	1219,5
TAX (adjusted)	245,3527	276,4393	245,718	248,072	249,326	268,29
NOPLAT	687,5473	774,6607	871,182	879,528	883,974	951,21
Change in working capital		148,112	242,326	-28,998	57,826	103,682
Capital expenditures		-184,5	-1418,4	-278,2	-497,4	-616,3
Free cash flow		738,2727	-304,892	572,33	444,4	438,592

Source: own creation

Platzer

NOPLAT & FREE CAS	2011	2012	2013	2014	2015	2016
Rental income	329,7	384,3	464,2	524,3	583,1	687,1
operating income	329,7	384,3	464,2	524,3	583,1	687,1
Maintenance	-14,5	-12,7	-15,7	-17,8	-20,7	-23,3
Operations	-53,3	-68	-77,7	-78,2	-31,5	-104,6
Ground rent	0	0	0	0	0	0
Property tax	-19	-21,7	-27,7	-31,8	-36,1	-45
Customer losses	-30	-0,8	-0,7	-1,4	-1,4	-5,7
Other	-1	-1	-1,3	-2	-1,9	-2
Central administration	-19,4	-21,9	-25,6	-32,3	-35	-33,5
Operating cost	-143,2	-126,1	-148,7	-163,5	-186,6	-220,1
Operating profit	186,5	258,2	315,5	361,4	402,5	467
EBITDA	186,5	258,2	315,5	361,4	402,5	467
EBIT	186,5	258,2	315,5	361,4	402,5	467
TAX (adjusted)	43,0435	67,9066	69,41	79,508	88,55	102,74
NOPLAT	137,4505	190,3	246,09	281,89	313,95	364,26
Change in working capital		26,408	31,002	-25,714	44,816	72,54
Capital expenditures		-1481,6	-724,3	-1029,6	-938,4	-3380,8
Free cash flow		-1264,9	-447,21	-773,422	-579,634	-2944

Wallenstam

NOPLAT & FREE CASH FLOW	2011	2012	2013	2014	2015	2016
Rental income	1532	1576	1578	1566	1549	1607
operating income	1532	1576	1578	1566	1549	1607
Fuel expenses (heating)	-109	-102	-100	-80	-73	-76
Other operating expenses	-201	-185	-179	-165	-156	-166
Maintenance costs	-138	-134	-123	-116	-114	-106
Site leasehold/rent	-16	-15	-15	-13	-13	-13
Property tax	-65	-67	-66	-65	-63	-73
Management costs and administrative exp	-163	-172	-199	-187	-188	-191
Operating cost	-692	-675	-682	-626	-607	-625
Operating profit	840	901	896	940	942	982
EBITDA	840	901	896	940	942	982
EBIT	840	901	896	940	942	982
TAX (adjusted)	220,92	236,963	197,12	206,8	207,24	216,04
NOPLAT	619,08	664,04	698,88	733,2	734,76	765,96
Change in working capital	0	-65,88	65,36	208,24	-337,66	179,84
Capital expenditures	0	-506	129	668	-820	-941
Free cash flow	0	92,157	893,84	1609,44	-422,9	4,8

Source: own creation

6.12 Invested capital

Fabege

Invested Capital	2011	2012	2013	2014	2015	2016
Operating current assets	197,08	299,38	163,18	339,78	280,96	306,1
Operating non-interest bearing debt	817	776	752	680	992	1198
Operating working capital	-619,92	-476,62	-588,82	-340,26	-711,04	-891,9
Net PPE	1	1	1	1	1	2
Net investment properties	28057	29134	30143	27979	32447	32396
Other operating assets (net of operating liabilities)	-41	37	-96	137	136	46
Fixed assets	28017	29172	30048	28117	32584	32444
Invested Capital	27397,08	28695,38	29459,18	27776,74	31872,96	31552,1

Hufvudstaden

INVESTED CAPITAL	2011	2012	2013	2014	2015	2016
Operating current assets	434,146	267,934	85,708	141,606	154,98	94,998
Noninterest bearing debt	466,1	448	508,1	535	606,2	649,9
Operating working capital	-31,954	-180,066	-422,392	-393,394	-451,22	-554,902
Net PPE	5,6	4,3	5,5	7	7,4	6,6
Net investment properties	21007,3	21193	22646,7	22886,4	23383	23999,7
Other operating assets (Net of operating liabilities)	-1,6	-1,7	34,8	-2,2	-2,6	-3
Fixed assets	21011,3	21195,6	22687	22891,2	23387,8	24003,3
Invested Capital	20979,346	21015,534	22264,608	22497,806	22936,58	23448,398

Platzer

INVESTED CAPITAL	2011	2012	2013	2014	2015	2016
operating current assets	39,994	27,286	38,484	36,638	67,782	79,742
noninterest bearing debt	121,6	135,3	177,5	150	225,9	310,4
operating working capital	-81,606	-108,01	-139,016	-113,302	-158,118	-230,658
Net PPE	2,8	2,7	5,6	5,6	4,5	5,6
Net investment properties	4440,4	5922,1	6643,4	7673	8612,5	11992,2
Other operating assets (net	0,1	0,1	0	0	0	0
Fixed assets	4443,3	5924,9	6649	7678,6	8617	11997,8
Invested Capital	4361,694	5816,9	6510	7565,3	8458,88	11767,1

Wallenstam

INVESTED CAPITAL	2011	2012	2013	2014	2015	2016
operating current assets	405,64	611,52	426,56	253,32	651,98	319,14
noninterest bearing debt	540	680	561	596	657	504
operating working capital	-134,36	-68,48	-134,44	-342,68	-5,02	-184,86
Net PPE	0	0	0	0	0	0
Net investment properties	25447	25633	25427	25000	26102	27097
Other operating assets (net of operating lia	336	370	369	404	288	253
Fixed assets	25783	26003	25796	25404	26390	27350
Invested Capital	25648,6	25934,5	25661,6	25061,3	26385	27165,1

Source: own creation

6.13 Average ROIC

Fabege

AVERAGE ROIC	2011	2012	2013	2014	2015	2016
NOPLAT	954,539	1198,816	1028,46	1387,78	994,18	1456,14
Invested Capital	27397,08	28695,38	29459,18	27776,74	31872,96	31552,1
Average Invested Capital		28046,23	29077,28	28617,96	29824,85	31712,53
ROIC	0,03	0,04	0,03	0,05	0,03	0,05
AVERAGE ROIC	0,03	0,04	0,04	0,05	0,03	0,05

Hufvudstaden

AVERAGE ROIC	2011	2012	2013	2014	2015	2016
NOPLAT	687,5473	774,6607	871,182	879,528	883,974	951,21
Invested Capital	20979,346	21015,534	22264,608	22497,806	22936,58	23448,398
Average Invested Capital		20997,44	21640,071	22381,207	22717,193	23192,489
ROIC	0,03	0,04	0,04	0,04	0,04	0,04
AVERAGE ROIC		0,04	0,04	0,04	0,04	0,04

Platzer

AVERAGE ROIC	2011	2012	2013	2014	2015	2016
NOPLAT	137,4505	190,293	246,09	281,892	313,95	364,26
INVESTED CAPITAL	4361,694	5816,89	6509,984	7565,298	8458,882	11767,14
Average Invested Capital		5089,29	6163,435	7037,641	8012,09	10113,01
ROIC	0,032	0,033	0,038	0,037	0,037	0,031
AVERAGE ROIC		0,037	0,040	0,040	0,039	0,036

Wallenstam

AVERAGE ROIC	2011	2012	2013	2014	2015	2016
NOPLAT	619,08	664,037	698,88	733,2	734,76	765,96
Invested capital	25648,64	25934,52	25661,56	25061,32	26384,98	27165,14
Average Invested capital		25791,58	25798,04	25361,44	25723,15	26775,06
ROIC	0,024	0,026	0,027	0,029	0,028	0,028
AVERAGE ROIC	0,000	0,026	0,027	0,029	0,029	0,029

Source: own creation

6.14 ROIC break down peer group

Breaking down ROIC
Fabege

Breaking down ROIC

	2011	2012	2013	2014	2015	2016	
EBIT	1164	1200	1349	1418	1364	1437	
Tax on operations (actual)	-209,461	-1,184	-320,54	-30,22	-369,82	19,14	
Average Invested Capital	0	28046,23	29077,28	28617,96	29824,9	31712,53	
ROIC		0,042744	0,03537	0,048493	0,03333	0,045917	0,04117166

Breaking down ROIC

	2011	2012	2013	2014	2015	2016	
Tax rate	-18%	0%	-24%	-2%	-27%	1%	-12%

	2011	2012	2013	2014	2015	2016	
EBIT	1164	1200	1349	1418	1364	1437	
Average Invested Capital		28046,23	29077,28	28617,96	29824,9	31712,53	
Pre tax ROIC		4,28%	4,64%	4,95%	4,57%	4,53%	4,60%

Breaking down Pre tax ROIC

	2011	2012	2013	2014	2015	2016	
Operating profit	1164	1200	1349	1418	1364	1437	
Operating income	1804	1869	2059	2087	1998	2105	
Operating margin	65%	64%	66%	68%	68%	68%	66%

	2011	2012	2013	2014	2015	2016	
Average Invested Capital		28046,23	29077,28	28617,96	29824,9	31712,53	1,13072345
Operating income	1804	1869	2059	2087	1998	2105	1,12627073
Average capital turns		0,06664	0,070811	0,072926	0,06699	0,066378	0,069

Breaking down Operating margin

	2011	2012	2013	2014	2015	2016	Average
Property tax	-129	-139	-152	-145	-142	-161	
Ground rent	-29	-28	-35	-28	-23	-23	
Property tax Ground rent	-158	-167	-187	-173	-165	-184	
/ Operating income	-8,8%	-8,9%	-9,1%	-8,3%	-8,3%	-8,7%	-8,7%
Operating expenses, maintaenance and tenant customisations	-301	-310	-331	-299	-269	-258	
Property/project admin and lettings	-105	-115	-117	-119	-127	-147	
	-406	-425	-448	-418	-396	-405	
/ Operating income	-22,5%	-22,7%	-21,8%	-20,0%	-19,8%	-19,2%	-21,0%
Central administration and marketing	-63	-64	-62	-67	-65	-70	
/ Operating income	-3,5%	-3,4%	-3,0%	-3,2%	-3,3%	-3,3%	-3,3%
VAT expense	-13	-13	-13	-11	-8	-9	
other	-13	-13	-13	-11	-8	-9	
/ Operating income	-0,7%	-0,7%	-0,6%	-0,5%	-0,4%	-0,4%	-0,6%

Breaking down Average Capital turns

	2011	2012	2013	2014	2015	2016	Average
Operating working capital	-619,92	-476,62	-588,82	-340,26	-711,04	-891,9	
Operating Income	1804	1869	2059	2087	1998	2105	
Operating working cap / revenues	-34%	-26%	-29%	-16%	-36%	-42%	-30%

	2011	2012	2013	2014	2015	2016	Average
Adjusted value investment properties	28057	29134	30143	27979	32447	32396	
Operating Income	1804	1869	2059	2087	1998	2105	
Investment properties / revenues	15,55266075	15,58801	14,63963	13,40632	16,2397	15,39002	15,1
	0,06429768	0,064152	0,068308	0,074592	0,06158	0,064977	0,06631724

	2011	2012	2013	2014	2015	2016	
Fixed assets	28017	29172	30048	28117	32584	32444	
Operating Income	1804	1869	2059	2087	1998	2105	
	15,5304878	15,60835	14,59349	13,47245	16,3083	15,41283	15,1543183

Breaking down ROIC
Hufvudstaden

Breaking down ROIC

	2011	2012	2013	2014	2015	2016	
EBIT	932,9	1051,1	1116,9	1127,6	1133,5	1219,5	
Tax operations	-251,8458	568,0735	-246,766	-212,762	-249,134	-269,532	
Average Invested Capital		20997,44	21640,07	22381,207	22717,193	23192,489	
ROIC		0,0771129	0,040209	0,04087528	0,03892057	0,040960157	0,04761566

Breaking down ROIC

	2011	2012	2013	2014	2015	2016	
Tax rate	-27%	54%	-22%	-19%	-22%	-22%	-10%

	2011	2012	2013	2014	2015	2016	
EBIT	932,9	1051,1	1116,9	1127,6	1133,5	1219,5	
Average Invested Capital		20997,44	21640,07	22381,207	22717,193	23192,489	
Pre tax ROIC		5,01%	5,16%	5,04%	4,99%	5,26%	5,09%

Breaking down Pre tax ROIC

	2011	2012	2013	2014	2015	2016	
Operating profit	932,9	1051,1	1116,9	1127,6	1133,5	1219,5	
operating income	1437,3	1541,7	1640,4	1665,3	1689	1789,9	
Operating margin	65%	68%	68%	68%	67%	68%	67%

	2011	2012	2013	2014	2015	2016	
Average Invested Capital		20997,44	21640,07	22381,207	22717,193	23192,489	1,10453889
operating income	1437,3	1541,7	1640,4	1665,3	1689	1789,9	1,16099111
Average capital turns		0,073423236	0,075804	0,07440617	0,07434897	0,077175848	0,075

Breaking down Operating margin

	2011	2012	2013	2014	2015	2016	Average
Property tax	-15,5	-16,3	-17	-17	-21,5	-21,8	
Ground rent	-126,1	-128,2	-152,2	-154,2	-154,1	-164,5	
Property tax Ground rent	-141,6	-144,5	-168,3	-171,2	-175,6	-186,3	
/ Operating income	-9,9%	-9,4%	-10,3%	-10,3%	-10,4%	-10,4%	-10,1%
Maintenance	-46,8	-35,5	-32	-31,9	-34,4	-29	
Operations and administration	-236,1	-227,1	-237,8	-248,6	-256,5	-262,2	
Parking operations, costs	-48,2	-49,4	-49,7	-49,8	-50,4	-50	
	-331,1	-312	-319,5	-330,3	-341,3	-341,2	
/ Operating income	-23,0%	-20,2%	-19,5%	-19,8%	-20,2%	-19,1%	-20,3%
Central administration	-31,7	-34,1	-35,7	-36,2	-38,8	-42,9	
	-2,2%	-2,2%	-2,2%	-2,2%	-2,3%	-2,4%	-2,2%
Parking operations, costs	-48,2	-49,4	-49,7	-49,8	-50,4	-50	
	-48,2	-49,4	-49,7	-49,8	-50,4	-50	
/ Operating income	-3,4%	-3,2%	-3,0%	-3,0%	-3,0%	-2,8%	-3,1%

Breaking down Average Capital turns

	2011	2012	2013	2014	2015	2016	Average
Operating working capital	-31,954	-180,066	-422,392	-393,394	-451,22	-554,902	
operating income	1437,3	1541,7	1640,4	1665,3	1689	1789,9	
Operating working cap / revenues	-2%	-12%	-26%	-24%	-27%	-31%	-20%

	2011	2012	2013	2014	2015	2016	Average
ADJUSTED VALUE	21007,3	21193	22646,7	22886,4	23383	23999,7	
operating income	1437,3	1541,7	1640,4	1665,3	1689	1789,9	
Investment properties / Income	14,615807	13,74651359	13,8056	13,7431093	13,8442866	13,4084027	13,9
	0,0684191	0,072745718	0,072434	0,07276374	0,07223196	0,074580099	0,072219583

	2011	2012	2013	2014	2015	2016	
Fixed assets	21011,3	21195,6	22687	22891,2	23387,8	24003,3	
operating income	1437,3	1541,7	1640,4	1665,3	1689	1789,9	
	14,61859	13,74820004	13,83016	13,7459917	13,8471285	13,41041399	13,866748

Breaking down ROIC
Platzer

Breaking down ROIC

	2011	2012	2013	2014	2015	2016	
EBIT	186,5	258,2	315,5	361,4	402,5	467	
Tax operations	-45,3486	-45,894	-60,376	-81,618	-80,128	-98,074	
Average Invested Capital		5089,29	6163,435	7037,641	8012,09	10113,012	
ROIC		0,04172	0,04139315	0,03975508	0,04023569	0,03648033	0,03991612

Breaking down ROIC

	2011	2012	2013	2014	2015	2016	
Tax rate	-24%	-18%	-19%	-23%	-20%	-21%	-21%

	2011	2012	2013	2014	2015	2016	
EBIT	186,5	258,2	315,5	361,4	402,5	467	
Average Invested Capital		5089,29	6163,435	7037,641	8012,09	10113,012	
Pre tax ROIC		5,07%	5,12%	5,14%	5,02%	4,62%	4,99%

Breaking down Pre tax ROIC

	2011	2012	2013	2014	2015	2016	
Operating profit	186,5	258,2	315,5	361,4	402,5	467	
operating income	329,7	384,3	464,2	524,9	589,1	687,1	
Operating margin	57%	67%	68%	69%	68%	68%	66%

	2011	2012	2013	2014	2015	2016	
Average Invested Capital		5089,29	6163,435	7037,641	8012,09	10113,012	1,98711647
operating income	329,7	384,3	464,2	524,9	589,1	687,1	1,78970261
Average capital turns		0,07551	0,07531514	0,07458465	0,07352638	0,06794217	0,073

Breaking down Operating margin

	2011	2012	2013	2014	2015	2016	Average
Ground rent	0	0	0	0	0	0	
Property tax	-19	-21,7	-27,7	-31,8	-36,1	-45	
Property tax Groun	-19	-21,7	-27,7	-31,8	-36,1	-45	
/ Operating income	-5,8%	-5,6%	-6,0%	-6,1%	-6,1%	-6,5%	-6,0%
Maintenance	-14,5	-12,7	-15,7	-17,8	-20,7	-23,3	
Operations	-59,3	-68	-77,7	-78,2	-91,5	-104,6	
	-73,8	-80,7	-93,4	-96	-112,2	-127,9	
/ Operating income	-22,4%	-21,0%	-20,1%	-18,3%	-19,0%	-18,6%	-19,9%
Central administrati	-19,4	-21,9	-25,6	-32,3	-35	-39,5	
	-5,9%	-5,7%	-5,5%	-6,2%	-5,9%	-5,7%	-5,8%
Customer losses	-30	-0,8	-0,7	-1,4	-1,4	-5,7	
Other	-1	-1	-1,3	-2	-1,9	-2	
	-31	-1,8	-2	-3,4	-3,3	-7,7	
/ Operating income	-9,4%	-0,5%	-0,4%	-0,6%	-0,6%	-1,1%	-2,1%

Breaking down Average Capital turns

	2011	2012	2013	2014	2015	2016	Average
operating working c	-81,606	-108,01	-139,016	-113,302	-158,118	-230,638	
operating income	329,7	384,3	464,2	524,9	589,1	687,1	
Operating workin	-25%	-28%	-30%	-22%	-27%	-34%	-27%

	2011	2012	2013	2014	2015	2016	Average
ADJUSTED VALU	4440,4	5922,1	6643,4	7673	8612,5	11992,2	
operating income	329,7	384,3	464,2	524,9	589,1	687,1	
Investment propes	13,46800121	15,4101	14,3115037	14,6180225	14,619759	17,4533547	15,0
	0,074250068	0,06489	0,06987386	0,06840871	0,06840058	0,05729558	0,06718689

	2011	2012	2013	2014	2015	2016	
Fixed assets	4443,3	5924,9	6649	7678,6	8617	11997,8	
operating income	329,7	384,3	464,2	524,9	589,1	687,1	
	13,47679709	15,4174	14,3235674	14,6286912	14,6273977	17,4615049	14,9892234

Breaking down ROIC
Wallenstam

Breaking down ROIC

	2011	2012	2013	2014	2015	2016	
EBIT	840	901	896	940	942	982	
Tax operations	-165,171	510,363	65,66	-113,2	-119,28	-142,48	
Average Invested capital	0	25791,58	25798,04	25361,44	25723,15	26775,06	
ROIC		0,054721851	0,037726475	0,03260067	0,03198364	0,03135455	0,03758744

Breaking down ROIC

	2011	2012	2013	2014	2015	2016	
Tax rate	-20%	57%	7%	-12%	-13%	-15%	1%

	2011	2012	2013	2014	2015	2016	
EBIT	840	901	896	940	942	982	
Average Invested capital		25791,58	25798,04	25361,44	25723,15	26775,06	
Pre tax ROIC		3,49%	3,47%	3,71%	3,66%	3,67%	3,60%

Breaking down Pre tax ROIC

	2011	2012	2013	2014	2015	2016	
Operating profit	840	901	896	940	942	982	
operating income	1532	1576	1578	1566	1549	1607	
Operating margin	55%	57%	57%	60%	61%	61%	58%

	2011	2012	2013	2014	2015	2016	
Average Invested capital		25791,58	25798,04	25361,44	25723,15	26775,06	1,03813182
operating income	1532	1576	1578	1566	1549	1607	1,01967005
Average capital turns		0,061105213	0,061167438	0,06174728	0,06021813	0,06001854	

Breaking down Operating margin

	2011	2012	2013	2014	2015	2016	Average
Site leasehold/rent	-16	-15	-15	-13	-13	-13	
Property tax	-65	-67	-66	-65	-63	-73	
	-81	-82	-81	-78	-76	-86	
/ Operating income	-5,3%	-5,2%	-5,1%	-5,0%	-4,9%	-5,4%	-5,1%
Fuel expenses (heating)	-109	-102	-100	-80	-73	-76	
Maintenance costs	-138	-134	-123	-116	-114	-106	
Other operating expenses	-201	-185	-179	-165	-156	-166	
	-448	-421	-402	-361	-343	-348	
/ Operating income	-29,2%	-26,7%	-25,5%	-23,1%	-22,1%	-21,7%	-24,7%
Management costs and administrative expenses	-163	-172	-199	-187	-188	-191	
/ Operating income	-10,6%	-10,9%	-12,6%	-11,9%	-12,1%	-11,9%	-11,7%

Breaking down Average Capital turns

	2011	2012	2013	2014	2015	2016	Average
operating working capital	-134,36	-68,48	-134,44	-342,68	-5,02	-184,86	
operating income	1532	1576	1578	1566	1549	1607	
Operating working cap / revenues	-9%	-4%	-9%	-22%	0%	-12%	-9%

	2011	2012	2013	2014	2015	2016	Average
ADJUSTED VALUE	25447	25633	25427	25000	26102	27097	
operating income	1532	1576	1578	1566	1549	1607	
Investment properties / Income	16,61031332	16,26459391	16,11343473	15,9642401	16,8508715	16,8618544	

	2011	2012	2013	2014	2015	2016	
Fixed assets	25783	26003	25796	25404	26390	27350	
operating income	1532	1576	1578	1566	1549	1607	
	16,82963446	16,49936548	16,34727503	16,2222222	17,0367979	17,0192906	16,6590976

Source: own creation

6.15 Peer group Information

Fabege

	2011	2012	2013	2014	2015	2016
Share price 18/12	50	67	75	99	137	142
No shares (*1 000 000) year end	165	165	165	165	165	165
Market cap	8311	11156	12413	16407	22576	23420
Net intrest bearing debt	16759	17708	18279	19335	21337	22319
Enterprise value	25070	28863	30692	35742	43913	45738

	2011	2012	2013	2014	2015	2016
Equity / (Debt + Equity)	0,33	0,39	0,40	0,46	0,51	0,51
Debt / (Debt + Equity)	0,67	0,61	0,60	0,54	0,49	0,49
ROE	0,11	0,11	0,08	0,08	0,04	0,06
EV / EBITDA	21,54	24,05	22,75	25,21	32,19	31,83
EV/ Revenue	13,90	15,44	14,91	17,13	21,98	21,73

Hufvudstaden

	2011	2012	2013	2014	2015	2016
Share price 18/12	67	84	84	100	119	139
No shares (*1 000 000) year end	211	211	211	211	211	211
Market cap	14050	17810	17736	21085	25057	29282
Net intrest bearing debt	9089	8319	9437	9569	9809	10085
Enterprise value	23139	26129	27173	30654	34865	39367

	2011	2012	2013	2014	2015	2016
Equity / (Debt + Equity)	0,61	0,68	0,65	0,69	0,72	0,74
Debt / (Debt + Equity)	0,39	0,32	0,35	0,31	0,28	0,26
ROE	0,05	0,04	0,05	0,04	0,04	0,03
EV / EBITDA	24,80	24,86	24,33	27,19	30,76	32,28
EV/ Revenue	16,10	16,95	16,57	18,41	20,64	21,99

Source: Own creation based on data from (Thomson Reuters, 2017) and annul reports

RISK

6.16 Long term liquidity risk peer group

Long-Term Liquidity Risk
Fabege

Financial Leverage

Year	2011	2012	2013	2014	2015	2016	Average
Total Liabilities	18821	22305	22880	22235	25272	27221	23122
Book Value Equity	11890	11404	12551	13783	16479	23002	14852
Financial Leverage	1,58	1,96	1,82	1,61	1,53	1,18	1,6

Interest Coverage Ratio

Year	2011	2012	2013	2014	2015	2016	Average
Cash Flow from Operations	1163	-1911	341	1938	-1770	892	109
EBIT	1337	1367	1484	1718	1385	1928	1537
Net Financial Expenses	613	530	762	759	706	998	728
Interest Coverage Ratio	1,90	-3,61	0,45	2,55	-2,51	0,89	-0,05
Interest Coverage Ratio (EBIT)	2,18	2,58	1,95	2,26	1,96	1,93	2,14

Long-Term Liquidity Risk
Hufvudstaden

Financial Leverage

Year	2011	2012	2013	2014	2015	2016	Average
Total Liabilities	10208	9732	11215	11721	12756	14661	11715,52
Book Value Equity	12487	13921	15261	16695	19567	23047	16830
Financial Leverage	0,82	0,70	0,73	0,70	0,65	0,64	0,71

Interest Coverage Ratio

Year	2011	2012	2013	2014	2015	2016	Average
Cash Flow from Operations		738	-305	572	444	439	288
EBIT	933	1051	1117	1128	1133	1220	1149
Net Financial Expenses	0	148	169	145	137	125	144
Interest Coverage Ratio		4,98	-1,80	3,95	3,24	3,50	2,2
Interest Coverage Ratio (EBIT)		7,09	6,60	7,79	8,27	9,72	8,1

Long-Term Liquidity Risk
Platzer

Financial Leverage

Year	2011	2012	2013	2014	2015	2016	Average
Total Liabilities	3226	4420	4921	5541	6546	9153	5634
Book Value Equity	1359	1816	2726	2966	3593	4703	2860
Financial Leverage	2,37	2,43	1,81	1,87	1,82	1,95	2,04

Interest Coverage Ratio

Year	2011	2012	2013	2014	2015	2016	Average
Cash Flow from Operations		-1265	-447	-773	-580	-2944	-1202
EBIT		258	316	361	403	467	361
Net Financial Expenses		128	150	150	136	145	142
Interest Coverage #DIVISION/0!		-9,90	-2,99	-5,15	-4,26	-20,36	-8,53
Interest Coverage #DIVISION/0!		2,02	2,11	2,41	2,96	3,23	2,54

Long-Term Liquidity Risk
Wallenstam

Financial Leverage

Year	2011	2012	2013	2014	2015	2016	Average
Total Liabilities	18672	19320	19597	18874	19464	21614	19590
Book Value Equity	10295	11890	12840	12883	15103	17788	13467
Financial Leverage	1,81	1,62	1,53	1,47	1,29	1,22	1,49

Interest Coverage Ratio

Year	2011	2012	2013	2014	2015	2016	Average
Cash Flow from Operations	0	92	894	1609	-423	5	435
EBIT	840	901	896	940	942	982	932
Net Financial Expenses	433	447	423	348	270	249	347
Interest Coverage Ratio	0,00	0,21	2,11	4,62	-1,57	0,02	1,08
Interest Coverage Ratio (EBIT)	1,94	2,02	2,12	2,70	3,49	3,94	2,85

6.17 Short term liquidity risk peer group

Fabege
Short-Term Liquidity Risk

Current ratio

Year	2011	2012	2013	2014	2015	2016	Average
Current Assets	436	674	463	1916	546	1863	
Current Liabilities	4098	9358	4545	7762	8056	8657	
Current Ratio	0,11	0,07	0,10	0,25	0,07	0,22	0,14

Hufvudstaden
Short-Term Liquidity Risk

Current Ratio

Year	2011	2012	2013	2014	2015	2016	Average
Current Assets	432	585	558	583	564	1173	
Current Liabilities	716	1998	1708	1535	1706	3300	
Current Ratio	0,60	0,29	0,33	0,38	0,33	0,36	0,38

Platzer
Short-Term Liquidity Risk

Current Ratio

Year	2011	2012	2013	2014	2015	2016	Average
Current Assets	72,1	137,8	706,5	122,7	289,7	200,2	
Current Liabilities	122,1	136,2	181,8	151,0	233,1	312,4	
Current Ratio	0,6	1,0	3,9	0,8	1,2	0,6	1,4

Wallenstam
Short-Term Liquidity Risk

Current Ratio

Year	2011	2012	2013	2014	2015	2016	Average
Current Assets	548	968	2134	935	750	1220	
Current Liabilities	12083	15241	16213	14500	14250	15582	
Current Ratio	0,0	0,1	0,1	0,1	0,1	0,1	0,07

Source: Own contribution

6.18 Interest coverage ratio peer group

Interest Coverage Ratio	Fabege					Hufvudstaden			Platzer			Wallenstam		
Year	2012	2013	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Cash Flow from Operations	-1911	341	1938	-1770	892	572	444	439	-773	-580	-2944	1609	-423	5
Net Financial Expenses	530	762	759	706	998	145	137	125	150	136	145	348	270	249
Interest Coverage Ratio	-3,6	0,4	2,6	-2,5	0,9	4,0	3,2	3,5	-5,1	-4,3	-20,4	4,6	-1,6	0,02

Source: Own contribution

6.19 Liquidity cycle Fabege

Liquidity Cycle							
Year	2011	2012	2013	2014	2015	2016	Average
Current Assets	436	674	463	1916	546	1863	
Current Liabilities	4098	9358	4545	7762	8056	8657	
Working Capital	-3662	-8684	-4082	-5846	-7510	-6794	
Revenue	1977	2036	2194	2387	2019	2596	
Turnover Rate	-0,5	-0,2	-0,5	-0,4	-0,3	-0,4	
Liqudity Cycle = (365 / Net Working Cap)	-676,1	-1556,8	-679,1	-893,9	-1357,7	-955,2	

Source: Own contribution

Forecasting

7.1 Operating costs

Operating costs										
Cost per sqm (SEK)	2008	2009	2010	2011	2012	2013	2014	2015	2016	Average
Operating expenses, maintenance and tenant customisations	-0,33	-0,30	-0,33	-0,27	-0,27	-0,28	-0,28	-0,25	-0,24	-0,287
Property tax	-0,09	-0,09	-0,12	-0,12	-0,12	-0,13	-0,14	-0,13	-0,15	-0,123
Ground rent	-0,03	-0,03	-0,03	-0,03	-0,02	-0,03	-0,03	-0,02	-0,02	-0,026
VAT expense	-0,02	-0,02	-0,01	-0,01	-0,01	-0,01	-0,01	-0,01	-0,01	-0,012
Property/project admin and lettings	-0,07	-0,07	-0,09	-0,09	-0,10	-0,10	-0,12	-0,12	-0,14	-0,100
Central administration and marketing	-0,04	-0,04	-0,06	-0,06	-0,06	-0,05	-0,07	-0,06	-0,07	-0,05538
Total	-0,57	-0,55	-0,64	-0,58	-0,59	-0,62	-0,65	-0,58	-0,63	-0,60

Source: Own contribution

7.2 Market yield projections

Market yield prediction	2014	2015	2016	2017ex	2018ex	2019ex	2020ex	2021ex	2022ex	2023ex	2024ex	2025ex	2026ex
Stockholm inner city	5,10%	4,64%	4,17%	4,00%	4,00%	3,80%	3,70%	3,70%	3,70%	3,70%	3,70%	3,70%	3,70%
Solna	5,72%	5,12%	4,83%	4,70%	4,50%	4,30%	4,10%	4,00%	4,00%	4,00%	4,00%	4,00%	4,00%
Hammarby sjöstad	5,92%	5,45%	4,99%	4,80%	4,80%	4,70%	4,60%	4,50%	4,50%	4,50%	4,50%	4,50%	4,50%

Source: Own contribution

7.3 Forecast CAPEX and change in value of investment properties

CAPEX	2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX
Change PP&E	0	0	0	0	0	0,1373	0,1252	0,0620	0,0633
Change Investment Properties	2113	2726	2481	2224	2164	941	960	979	999
Change Others	-6	-5	-7	-4	-5	1	-3	-2	-2
Net CAPEX	-2106	-2721	-2475	-2220	-2160	-943	-957	-978	-997

Solna		2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	Terminal Value
	Acquisitions (000) sqm	0	0	0	0	0	0	0	0	0	0
	Divestments Acquisitions (000) sqm	33	33	28	28	20	18	0	0	0	0
	Net Acquistions & Divestments Acquisitions (000) sqm	-33	-33	-28	-28	-20	-18	0	0	0	0
	Development of properties Acquisitions (000) sqm	65	65	55	55	40	35		0	0	0
	Change in sqm	33	33	28	28	20	18	0	0	0	0
	CAPEX development	-3203373	-3513658	-3266916	-3563306	-2762519	-2488741	0	0	0	0
	CAPEX acqusition & divestments	1922384	2108195	1960150	2137984	1657511	1493845	0	0	0	0
	CAPEX investment in conversions and extensions										
	CAPEX Solna	-1281589	-1405463	-1306767	-1425323	-1105008	-995896	0	0	0	0

Hammarby Sjöstad		2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	Terminal Value
	Development of properties (000) sqm	0	0	14	5	5	5	0	0	0	0
	Change in sqm	0	0	14	5	5	5	0	0	0	0
	CAPEX development Hammarby Sjostad	0	0	-670274	-251924	-265247	-270555	0	0	0	0
	CAPEX Acqusition & divestments										
	CAPEX Hammarby sjöstad	0	0	-670274	-251924	-265247	-270555	0	0	0	0

Value investment properties

Year	2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	Terminal value
Investment in extensions and conversions		-668	-707	-749	-804	-854	-898	-941	-960	-979	-999
CAPEX Stockholm inner City		0	0	0	0	0	0	0	0	0	0
CAPEX Solna		-1282	-1405	-1307	-1425	-1105	-996	0	0	0	0
CAPEX Hammarby Sjöstad		0	0	-670	-252	-265	-271	0	0	0	0
Total Investment Invested Properties		-1950	-2113	-2726	-2481	-2224	-2164	-941	-960	-979	-999
Adjusted value invested properties		35358	37470	40197	42678	44902	47066	48008	48968	49947	50946

Source: Own contribution

7.4 Market rent, market growth rate, Fabege rent level, vacancy, sqm & rental incom

Stockholm Inner City

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	Terminal Value
Average market rent	3575	2775	2900	3183,5	3625	3625	3750	3875	5125	5381	5597	5820	5895	6115	6237	6362	6489	6619	6751
Growth rate		-22%	5%	10%	14%	0%	3%	3%	32%	5%	4%	4%	3%	2%	2%	2%	2%	2%	2%
Average rent level Fabege (SEK)	2173	2538	2563	2241	2253	2407	2628	2404	2602	2918,6	3247,0	3527,1	3837,3	4109,6	4351,4	4568,6	4766,3	4948,3	5118,0
Vacancy Fabege	5%	9%	10%	8%	7%	8%	6%	6%	5%	4,5%	4,0%	3,5%	3,5%	4,0%	4,0%	4,0%	4,0%	4,0%	4,0%
Total square meter	551	547	501	437	475	470	402	403	400	400	400	400	400	400	400	400	400	400	400
Rental income (SEK)	1137	1264	1155	1025	998	1041	993	911	989	1115	1247	1361	1481	1578	1671	1754	1830	1907	1904

Hammarby Sjöstad

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	Terminal Value
Average market rent	1350	1650	1500	1650	1900	2000	2050	2300	2600	2704	2812	2925	3012	3103	3165	3228	3293	3359	3426
Growth rate		22%	-9%	10%	3%	11%	2%	12%	13%	4%	4%	4%	3%	3%	2%	2%	2%	2%	2%
Average rent level Fabege	1340,464063	1575,279641	1600,825114	1414,425319	1541,254427	1586,356742	2050,276634	1984,22566	2030,4323	2160	2279	2374	2479	2582	2676	2765	2849	2929	3001
Vacancy	11%	13%	18%	16%	12%	10%	12%	15%	8%	7,0%	6,0%	5,5%	5,0%	5,0%	5,0%	5,0%	5,0%	5,0%	5,0%
Total square meter	147	146	132	130	126	124	118	118	105	105	105	113	124	123	134	134	134	134	134
Rental income	163,3500211	186,2925704	173,2733903	154,4550265	170,8942908	188,1974124	212,9007319	199,017834	201,93576	213	225	267	292	316	341	352	363	370	377

Solna

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	Terminal Value
Weighted average market rent Solna			1634	1757	1935	2070	2141	2230	2647	2779	2918	3064	3187	3314	3414	3482	3552	3623	3695
Growth rate				4%	10%	7%	3%	4%	13%	5%	5%	5%	4%	4%	3%	2%	2%	2%	2%
Average rent level Fabege			1700	1562	1547	1613	1542	1615	1746	1836	2059	2205	2373	2533	2676	2815	2906	3048	3152
Vacancy	10%	9%	14%	12%	10%	6%	6%	7%	6%	6%	6%	5%	5%	5%	4%	4%	4%	4%	4%
Total square meter	433	434	462	455	503	547	503	570	557	589	622	649	677	697	714	714	714	714	714
Rental income (SEK)	675	744	678	625	700	830	881	888	914	1056	1210	1361	1526	1677	1839	1931	2014	2054	2035

Total Fabege

	2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	2026 EX
Square meter	1094	1127	1168	1201	1226	1248	1248	1248	1248	1248
Rental value										
Rental income	2384	2682	2989	3209	3572	3851	4037	4207	4291	4377
Contracts expiry	16%	18%	16%	20%	20%	20%	20%	20%	20%	20%
Contracts no change	84%	82%	84%	80%	80%	80%	80%	80%	80%	80%

Source: Own contribution

7.5 Forecasting Other Operating Assets (net of liabilities)

Other operating assets (net of liabilities)	2008	2009	2010	2011	2012	2013	2014	2015	2016	Expected	2017 ex	2018 ex	2019 ex	2020 ex	2021 ex	2022 ex	2023 ex	2024 ex	2025 ex	2026 ex
Provision related to pensions	80	81	82	83	84	100	113	107	110		114	127	139	154	162	172	170	177	180	184
% of revenue	3,39%	3,60%	3,65%	4,20%	4,13%	4,56%	4,73%	5,30%	4,24%	4,20%										
Provision related to rental guarantees on directed buildings	398	275	109	65	36	35	42	37	104		74	83	91	100	105	112	110	115	117	119
% of revenue	16,83%	12,22%	4,86%	3,29%	1,77%	1,60%	1,76%	1,83%	4,01%	2,73%										
Other non-current receivables	180	92	38	107	157	39	232	280	260		135	152	166	183	192	205	202	210	215	219
% of revenue	8%	4%	2%	5%	8%	2%	12%	14%	10%	5%										
Sum	-298	-264	-153	-41	37	-96	137	136	46		-52	-59	-64	-71	-74	-79	-78	-81	-83	-84

Source: Own contribution

7.6 Forecasting Non Operating Assets

Non operating assets	2008	2009	2010	2011	2012	2013	2014	2015	2016	Expected
Interests in associated companies	21	307	443	531	810	778	630	217	106	
% of revenue	1%	14%	20%	30%	40%	35%	26%	11%	4%	20%
Receivables from associated companies	59	0	81	261	248	413	335	421	138	
% of revenue	3%	0%	4%	13%	12%	19%	14%	21%	5%	10%
Other long-term securities holdings	82	122	152	165	183	353	285	7	12	
% of revenue	3,5%	5,4%	6,8%	8,3%	9,0%	16,1%	11,3%	0,3%	0,5%	7%
Deferred tax	244	99	0	0	0	0	0	0	0	
% of revenue	10,4%	4,4%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2%
Excess cash	9,72	129,12	32,86	37,92	162,62	56,82	-18,74	-7,36	19,9	
% of revenue	0,4%	5,7%	1,5%	1,9%	8,0%	2,6%	-0,8%	-0,4%	0,8%	2%

Source: Own contribution

7.7 Forecasting Operating Working Capital

Operating working capital	Expected	2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	Terminal value
% of revenues											
Trade receivables	0,90%	21	24	27	30	32					
Other receivables	4,91%	117	132	147	162	175					
Other receivables related to sale of properties	12,21%	291	327	365	403	436					
Prepaid expenses and accrued income	2,80%	67	75	84	92	100					
Short-term investment	1,03%	25	28	31	34	37					
Working cash	1,83%	44	49	55	61	65					
Total											
Operating current assets		564	635	708	781	846					
Trade payables	6,35%	151	170	190	209	227					
Tax liabilities	0,72%	17	19	21	24	26					
Other liabilities	7,39%	176	198	221	244	264					
Provisions	2,09%	50	56	63	69	75					
Accrued expenses and deferred income	22,29%	531	598	666	735	796					
Total											
Noninterest bearing debt		926	1041	1161	1281	1387					
Operating working capital		-361	-406	-453	-500	-541	-607	-636	-663	-676	-689
% of revenues	-15,8%						-15,8%	-15,8%	-15,8%	-15,8%	-15,8%
Change in working capital		1005	45	47	47	41	65	29	27	13	14

Source: Own contribution

7.8 Invested capital, Historical & Forecasted

Invested Capital

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	Terminal Value
ASSETS																			
Trade receivables	42	19	18	15	30	16	12	13	14,1	21	21	24	27	30	32				
Other receivables	143	136	65	38	183	43	196	92	0	111	111	132	147	162	175				
Prepaid expenses and accrued income	43	58	43	43	43	58	56	66	135	61	67	75	84	92	100				
Short-term investment	0	0	0	0	0	50	34	70	114	25	25	28	31	34	37				
Working cash	44,28	43,88	40,14	36,08	37,38	41,18	41,74	33,36	42,1	44	44	49	55	61	65				
Other receivables related to sale of properties	148	431	1372	201	212	243	1535	273	1537	231	327	365	403	436					
Operating current assets	432,28	747,88	1544,14	398,08	511,38	406,18	1934,74	553,36	1843,1	564	635	708	781	846					
Trade payables	91	69	82	151	176	147	58	328	104,1	151	170	190	209	227					
Tax liabilities	25	10	6	17	0	3	5	3	86	17	19	21	24	26					
Provisions	146	83	80	47	23	25	11	5	1	50	56	63	69	75					
Other liabilities	32	245	37	181	107	76	114	160	436	176	138	221	244	264					
Accrued expenses and deferred income	454	458	466	468	430	526	503	501	572	531	538	666	735	796					
Operating non-interest-bearing debt	818	865	731	864	739	777	631	837	1193	925	1041	1161	1281	1387					
Operating working capital	-385,72	-117,12	813,14	-465,92	-287,62	-370,82	1243,74	-443,04	644,1	-361	-406	-453	-500	-541	-607	-636	-663	-689
Net PPE	3	2	3	1	1	1	1	1	2	1,8	2,0	2	2	3	3	3	3	3
Net investment properties	31056	31048	27981	29069	30146	31155	28391	33459	33408	35358	37470	40197	42678	44302	47066	48008	48968	50946
Other operating assets (net of operating liabilities)	-238	-264	-153	-41	37	-36	137	106	46	-52	-59	-64	-71	-74	-79	-78	-81	-84
Invested Capital	30375,28	30646,88	28644,14	28563,08	29836,38	30663,18	30372,74	33152,36	34100,1	34346	37007	33682	42110	44289	46383	47297	48227	50075
Interests in associated companies	21	307	443	531	810	778	630	217	106	542,8	608,8	665,5	733,7	772,3	822,8	844,3	861,2	878,4
Receivables from associated companies	53	0	81	261	248	413	335	421	138	212	305	333	368	387	412	423	432	440
Other long-term securities holdings	82	122	152	165	183	353	285	7	12	186	208	228	251	264	282	289	285	301
Deferred tax	244	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Excess cash	5,7	123,1	32,9	37,9	162,6	56,8	-16,7	-8,0	18,9	59	66	73	80	84	90	88	92	96
Non-operating assets	415,72	657,12	708,86	1054,32	1403,62	1600,82	1231,26	637,04	215,3	1060	1183	1239	1433	1508	1607	1582	1649	1715
Total funds invested	30791	31306	29353	29618	31300	32290	31604	33790	34376	36006	38195	40981	43543	45797	47990	48879	49876	51851

Source: Own contribution

DCF Valuation

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 EX	2018 EX	2019 EX	2020 EX	2021 EX	2022 EX	2023 EX	2024 EX	2025 EX	Terminal Value
										1	2	3	4	5	6	7	8	9	10
Rental income																			
Transaction																			
Operating Income																			
Operating expenses, maintenance and tenant customizations																			
Property tax																			
Ground rent																			
VAT expenses																			
Property/project admin and lettings																			
Central administration and marketing																			
Operating Costs																			
Operating Profit																			
EBITDA																			
EBIT																			
TAX																			
NOPLAT																			
Trade receivables																			
Other receivables																			
Other receivables related to sale of properties																			
Prepaid expenses and accrued income																			
Short-term investment																			
Working cash																			
Operating current assets																			
Trade payables																			
Tax liabilities																			
Provisions																			
Other liabilities																			
Accrued expenses and deferred income																			
Operating non-interest bearing debt																			
Operating working capital																			
Change in working capital																			
Capital expenditure																			
Free Cash Flow																			
Present Value Free Cash Flow																			

Detailed Forecast Period / *Simplified Forecast Period*

Source: Own contribution

Valuation

8.1 Beta

Calculation of beta with un-levering, re-levering and smoothening

Source: Own contribution

8.1.1 Regression Fabege against MSCI Europe

Source: Own contribution based on data from (Thomson Reuters, 2017)

8.1.2 Regression For the peers against MSCI europe

SUMMARY OUTPUT Hufvudstaden / MSCI

Regression Statistics

Multiple R	0,441683
R Square	0,195084
Adjusted R Square	0,180963
Standard Error	0,045379
Observations	59

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0,028449	0,028449	13,81484	0,000462
Residual	57	0,117379	0,002059		
Total	58	0,145828			

	Coefficients	Standard Err	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	0,010033	0,005936	1,690129	0,096466	-0,00185	0,021921	-0,00185	0,021921
X Variable 1	0,631375	0,169869	3,716832	0,000462	0,291218	0,971532	0,291218	0,971532

SUMMARY OUTPUT Platzer MSCI

Regression Statistics

Multiple R	0,403244
R Square	0,162605
Adjusted R Square	0,139973
Standard Error	0,050667
Observations	39

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0,018444	0,018444	7,184661	0,010914
Residual	37	0,094984	0,002567		
Total	38	0,113428			

	Coefficients	Standard Err	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	0,01764	0,008118	2,17292	0,036263	0,001191	0,034088	0,001191	0,034088
X Variable 1	0,616792	0,23011	2,680422	0,010914	0,150545	1,083039	0,150545	1,083039

SUMMARY OUTPUT Wallenstam MSCI

Regression Statistics

Multiple R	0,587926
R Square	0,345657
Adjusted R Square	0,334178
Standard Error	0,050016
Observations	59

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0,075324	0,075324	30,11031	9,78E-07
Residual	57	0,142591	0,002502		
Total	58	0,217915			

	Coefficients	Standard Err	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	0,012158	0,006543	1,858123	0,068319	-0,00094	0,025259	-0,00094	0,025259
X Variable 1	1,02736	0,187225	5,487287	9,78E-07	0,652447	1,402272	0,652447	1,402272

Source: Own contribution based on data from (Thomson Reuters, 2017)

8.2 Monte Carlo

Sensitivity analysis – Monte Carlo

Probability density function:

$$\begin{cases} 2(x - a)/((b - a)(c - a)) \\ \quad if\ a \le x \le c \\ 2(b - x)/((b - a)(b - c)) \\ \quad if\ c \le x \le b \end{cases}$$

(Evans, Hastings, & Peacock, 2000)

Sampling from triangular distributions:

$$F^{-1}(y|a,m,b,n) =$$
$$\begin{cases} a + \sqrt{y(m-a)(b-a)}, & \text{for } 0 \leq y \leq \frac{m-a}{b-a} \\ b - \sqrt{(1-y)(b-m)(b-a)}, & \text{for } \frac{m-a}{b-a} \leq y \leq 1 \end{cases}.$$

(Kotz & Rene van Dorp, 2004)

When testing the distribution with 1000 simulations for vacancy 2017 Stockholm inner city. The distribution should be similar to the triangle to the right.
The results from testing the simulation:
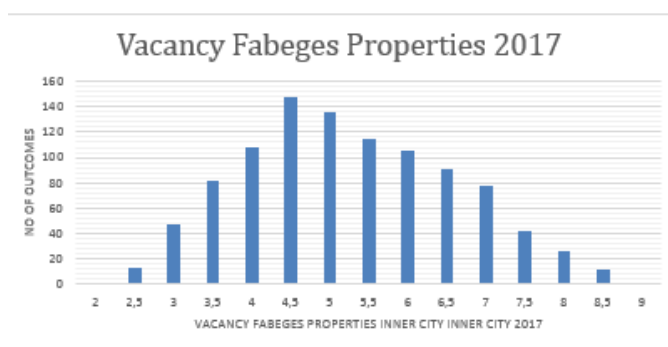
Source: Own contribution
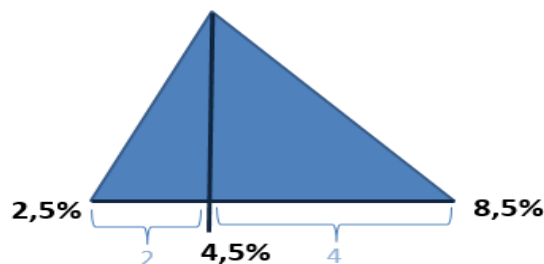
Source: Own contribution

*the triangle is not symmetric

8.3 Consensus estimates from Bloomberg

Based on consensus estimates from Bloomberg			
EV / EBITDA	2017	2018	2019
Fabege	26,5	24,0	21,1
Hufvudstaden	30,6	29,3	28,2
Platzer	17,6	16,8	16,1
Wallenstam	27,9	25,6	29,6
Average peers	25,4	23,9	24,6
average peers	29,2	27,5	28,9

Based on consensus estimates from Bloomberg			
EV / Revenue	2017	2018	2019
Fabege	20,7	18,4	16,6
Hufvudstaden	20,9	20,0	19,3
Platzer	11,9	11,5	11,0
Wallenstam	22,2	20,7	19,6
Average Peers	18,3	17,4	16,6
average peers	21,5	20,3	19,4

Source: Own contribution based on (Bloomberg , 2017)

Data

10.1 Data used for regression to derive beta from Reuters Datastream

Start	13/04/12		Start	13/04/12		Start	13/04/12		Start	13/04/12		Start	13/04/12	
End	13/03/17		End	13/03/17		End	13/03/17		End	13/03/17		End	13/03/17	
Frequency	M		Frequency	M		Frequency	M		Frequency	M		Frequency	M	
Name	MSCI EUROPE U$ - PRICE INDE		Name	FABEGE		Name	HUFVUDSTADEN 'A'		Name	PLATZER FASTIGHETER		Name	WALLENSTAM 'B'	
Code	MSEROP$(PI)		Code	W:FABG(P)		Code	W:HUA(P)		Code	W:PLFA(P)		Code	W:WBYF(P)	
CURRENCY	U$		CURRENCY	SK		CURRENCY	SK		CURRENCY	SK		CURRENCY	SK	
13/04/12	1304,495		13/04/12	56,3		13/04/12	70,9		13/04/12			13/04/12	31,4	
13/05/12	1282,482	-0,01687473	13/05/12	56,3	0	13/05/12	74,25	0,04724965	13/05/12			13/05/12	33,5	0,066879
13/06/12	1201,193	-0,06338413	13/06/12	50,2	-0,10834813	13/06/12	70,1	-0,05589226	13/06/12			13/06/12	30,62	-0,08597
13/07/12	1235,624	0,028664	13/07/12	57	0,13545817	13/07/12	76,7	0,09415121	13/07/12			13/07/12	34,22	0,11757
13/08/12	1306,769	0,0575782	13/08/12	60,7	0,06491228	13/08/12	80,3	0,04693611	13/08/12			13/08/12	37,45	0,094389
13/09/12	1381,092	0,05687539	13/09/12	61,15	0,00741351	13/09/12	80,7	0,00498132	13/09/12			13/09/12	36,55	-0,02403
13/10/12	1370,956	-0,00733912	13/10/12	64,4	0,053148	13/10/12	80,9	0,00247831	13/10/12			13/10/12	35,5	-0,02873
13/11/12	1350,965	-0,0145818	13/11/12	63,5	-0,01397516	13/11/12	83	0,02595797	13/11/12			13/11/12	37,05	0,043662
13/12/12	1435,607	0,06265299	13/12/12	66,1	0,04094488	13/12/12	83,35	0,00421687	13/12/12			13/12/12	38,22	0,031579
13/01/13	1501,499	0,04589836	13/01/13	65,95	-0,00226929	13/01/13	80	-0,04019196	13/01/13			13/01/13	38,37	0,003925
13/02/13	1515,39	0,00925142	13/02/13	69,7	0,05686126	13/02/13	85,45	0,068125	13/02/13			13/02/13	40,5	0,055512
13/03/13	1496,53	-0,01244564	13/03/13	69,7	0	13/03/13	87,35	0,02223523	13/03/13			13/03/13	42,22	0,042469
13/04/13	1496,589	3,9425E-05	13/04/13	68,5	-0,01721664	13/04/13	83,2	-0,04751002	13/04/13			13/04/13	42,87	0,015396
13/05/13	1544,807	0,0322186	13/05/13	72,65	0,06058394	13/05/13	90,3	0,08533654	13/05/13			13/05/13	48,2	0,124329
13/06/13	1508,345	-0,02360295	13/06/13	66,9	-0,07914659	13/06/13	83,15	-0,07918051	13/06/13			13/06/13	43,27	-0,10228
13/07/13	1508,292	-3,5138E-05	13/07/13	70,85	0,05904335	13/07/13	83,2	0,00060132	13/07/13			13/07/13	45,7	0,056159
13/08/13	1586,886	0,05210795	13/08/13	71,7	0,01199718	13/08/13	83,25	0,00060096	13/08/13			13/08/13	44,27	-0,03129
13/09/13	1607,623	0,01306773	13/09/13	70,05	-0,02301255	13/09/13	83	-0,003003	13/09/13			13/09/13	44,1	-0,00384
13/10/13	1643,923	0,02257992	13/10/13	72,3	0,03211991	13/10/13	81,5	-0,01807229	13/10/13			13/10/13	44,72	0,014059
13/11/13	1668,925	0,01520874	13/11/13	74,3	0,02766252	13/11/13	84,55	0,03742331	13/11/13			13/11/13	45,42	0,015653
13/12/13	1653,926	-0,00898722	13/12/13	73,25	-0,0141319	13/12/13	84	-0,00650503	13/12/13	24,58		13/12/13	46,32	0,019815
13/01/14	1753,972	0,06049001	13/01/14	80,35	0,09692833	13/01/14	88,05	0,04821429	13/01/14	25,23	0,026444	13/01/14	49,62	0,071244
13/02/14	1759,218	0,00299093	13/02/14	85,8	0,06782825	13/02/14	92,1	0,04599659	13/02/14	26,89	0,065795	13/02/14	50,75	0,022773
13/03/14	1750,829	-0,0047686	13/03/14	86,5	0,00815851	13/03/14	93,05	0,01031488	13/03/14	27,99	0,040907	13/03/14	51,8	0,02069
13/04/14	1771,702	0,01192178	13/04/14	86,8	0,00346821	13/04/14	90,85	-0,0236432	13/04/14	27,16	-0,02965	13/04/14	51,5	-0,00579
13/05/14	1822,27	0,02854205	13/05/14	94,7	0,09101382	13/05/14	98,75	0,08695652	13/05/14	28,45	0,047496	13/05/14	56,6	0,099029
13/06/14	1825,099	0,00155246	13/06/14	94	-0,00739176	13/06/14	96,8	-0,01974684	13/06/14	28,45	0	13/06/14	56,2	-0,00707
13/07/14	1782,703	-0,02322942	13/07/14	96,3	0,02446809	13/07/14	94,2	-0,0268595	13/07/14	29,46	0,035501	13/07/14	56,95	0,013345
13/08/14	1718,812	-0,0358394	13/08/14	89,9	-0,06645898	13/08/14	91,7	-0,02653928	13/08/14	27,99	-0,0499	13/08/14	54,85	-0,03687
13/09/14	1732,855	0,00817018	13/09/14	90,2	0,00333704	13/09/14	89,85	-0,02017448	13/09/14	27,71	-0,01	13/09/14	55,95	0,020055
13/10/14	1586,966	-0,08418996	13/10/14	81,75	-0,09368071	13/10/14	83,6	-0,06956038	13/10/14	25,69	-0,0729	13/10/14	50,3	-0,10098
13/11/14	1627,859	0,02576804	13/11/14	95,25	0,16513761	13/11/14	93,2	0,11483254	13/11/14	27,9	0,086026	13/11/14	57,35	0,140159
13/12/14	1597,496	-0,01865211	13/12/14	103	0,08136483	13/12/14	98,2	0,05364807	13/12/14	30,11	0,079211	13/12/14	61,5	0,072363
13/01/15	1574,377	-0,01447202	13/01/15	105,7	0,02621359	13/01/15	104,5	0,06415479	13/01/15	32,69	0,085686	13/01/15	67,55	0,098374
13/02/15	1667,627	0,05922978	13/02/15	126,6	0,19772942	13/02/15	118,5	0,13397129	13/02/15	34,43	0,053227	13/02/15	72	0,065877
13/03/15	1615,68	-0,03115025	13/03/15	119,7	-0,05450237	13/03/15	114,7	-0,03206751	13/03/15	34,07	-0,01046	13/03/15	67,75	-0,05903
13/04/15	1693,346	0,04807016	13/04/15	130	0,08604845	13/04/15	119,9	0,04533566	13/04/15	36	0,056648	13/04/15	72,7	0,073063
13/05/15	1736,335	0,02538701	13/05/15	123	-0,05384615	13/05/15	109,1	-0,09007506	13/05/15	33,42	-0,07167	13/05/15	67,2	-0,07565
13/06/15	1694,137	-0,02430291	13/06/15	118,4	-0,03739837	13/06/15	104,9	-0,03849679	13/06/15	32,13	-0,0386	13/06/15	62,8	-0,06548
13/07/15	1684,536	-0,00566719	13/07/15	127,4	0,07601351	13/07/15	112,5	0,07244995	13/07/15	33,7	0,048864	13/07/15	64,25	0,023089
13/08/15	1658,698	-0,01533835	13/08/15	127,6	0,00156986	13/08/15	115,7	0,02844444	13/08/15	32,96	-0,02196	13/08/15	67,75	0,054475
13/09/15	1542,623	-0,06997959	13/09/15	122	-0,04388715	13/09/15	110,5	-0,04494382	13/09/15	32,04	-0,02791	13/09/15	68	0,00369
13/10/15	1570,258	0,01791429	13/10/15	122,5	0,00409836	13/10/15	111,6	0,00995475	13/10/15	32,32	0,008739	13/10/15	68,95	0,013971
13/11/15	1522,947	-0,03012944	13/11/15	132,7	0,08326531	13/11/15	117,5	0,05286738	13/11/15	35,26	0,090965	13/11/15	70	0,015228
13/12/15	1499,112	-0,01565058	13/12/15	134,1	0,01055011	13/12/15	114,2	-0,02808511	13/12/15	34,99	-0,00766	13/12/15	67,95	-0,02929
13/01/16	1431,951	-0,04480052	13/01/16	132	-0,01565996	13/01/16	115	0,00700525	13/01/16	35,26	0,007716	13/01/16	64,7	-0,04783
13/02/16	1349,09	-0,05786581	13/02/16	126,3	-0,04318182	13/02/16	117,7	0,02347826	13/02/16	34,9	-0,01021	13/02/16	57,15	-0,11669
13/03/16	1465,808	0,0865161	13/03/16	133,9	0,06017419	13/03/16	126,8	0,07731521	13/03/16	38,67	0,108023	13/03/16	67,5	0,181102
13/04/16	1485,569	0,0134813	13/04/16	129,1	-0,03584765	13/04/16	125,6	-0,00946372	13/04/16	40,79	0,054823	13/04/16	70,35	0,042222
13/05/16	1449,957	-0,02397196	13/05/16	136,4	0,05654531	13/05/16	126,8	0,00955414	13/05/16	40,33	-0,01128	13/05/16	68,25	-0,02985
13/06/16	1416,626	-0,02298758	13/06/16	137,1	0,00513196	13/06/16	127,9	0,00867508	13/06/16	40,14	-0,00471	13/06/16	67,9	-0,00513
13/07/16	1436,301	0,01388863	13/07/16	146,3	0,0671043	13/07/16	136,8	0,06958561	13/07/16	42,81	0,066517	13/07/16	71,5	0,053019
13/08/16	1486,634	0,03504349	13/08/16	156,3	0,0683527	13/08/16	146,5	0,07090643	13/08/16	45,94	0,073114	13/08/16	74,8	0,046154
13/09/16	1462,357	-0,01633018	13/09/16	155,4	-0,00575816	13/09/16	145	-0,01023891	13/09/16	51,56	0,122333	13/09/16	70,3	-0,06016
13/10/16	1425,714	-0,02505749	13/10/16	147,9	-0,04826255	13/10/16	138,5	-0,04482759	13/10/16	45,94	-0,109	13/10/16	68,75	-0,02205
13/11/16	1411,409	-0,01003357	13/11/16	136,5	-0,07707911	13/11/16	130,8	-0,05559567	13/11/16	45,12	-0,01785	13/11/16	65	-0,05455
13/12/16	1468,32	0,04032212	13/12/16	143,2	0,04908425	13/12/16	138,8	0,06116208	13/12/16	46,6	0,032801	13/12/16	67,5	0,038462
13/01/17	1500,405	0,0218515	13/01/17	144,1	0,00628492	13/01/17	136,9	-0,01368876	13/01/17	44,7	-0,04077	13/01/17	67,75	0,003704
13/02/17	1513,137	0,00848571	13/02/17	151,2	0,04927134	13/02/17	142,9	0,04382761	13/02/17	47	0,051454	13/02/17	70,75	0,04428
13/03/17	1539,748	0,01758664	13/03/17	144,9	-0,04166667	13/03/17	135	-0,05528341	13/03/17	44,7	-0,04894	13/03/17	70,7	-0,00071

Source: Own contribution based on (Thomson Reuters, 2017)

10.2 Data regarding number of share for peers Reuters Datastream with adjustment based on annual report for Platzer

Number of shares

Fabege

Start	Q2 2007
End	Q2 2017
Frequency	Q
Name	FABEGE - NUMBER OF SHARES
Code	W:FABG(NOSH)

Q2 2007	100612
Q3 2007	178446
Q4 2007	178446
Q1 2008	178453
Q2 2008	178453
Q3 2008	169311
Q4 2008	169311
Q1 2009	169311
Q2 2009	169311
Q3 2009	169311
Q4 2009	169321
Q1 2010	169321
Q2 2010	169321
Q3 2010	165392
Q4 2010	165392
Q1 2011	165392
Q2 2011	165392
Q3 2011	165392
Q4 2011	165392
Q1 2012	165392
Q2 2012	165392
Q3 2012	165392
Q4 2012	165392
Q1 2013	165392
Q2 2013	165392
Q3 2013	165392
Q4 2013	165392
Q1 2014	165392
Q2 2014	165392
Q3 2014	165392
Q4 2014	165392
Q1 2015	165392
Q2 2015	165392
Q3 2015	165392
Q4 2015	165392
Q1 2016	165392
Q2 2016	165392
Q3 2016	165392
Q4 2016	165392
Q1 2017	165392
Q2 2017	165392

Hufvudstaden

Start	Q2 2010
End	Q2 2017
Frequency	Q
Name	HUFVUDST HUFVUDSTADEN 'C' - NUMBER OF
Code	W:HUA(NO W:HDC(NO Total

	W:HUA(NO	W:HDC(NO	Total
Q2 2010	202997	8275	211272
Q3 2010	202997	8275	211272
Q4 2010	202997	8275	211272
Q1 2011	202997	8275	211272
Q2 2011	202997	8275	211272
Q3 2011	202997	8275	211272
Q4 2011	202997	8275	211272
Q1 2012	202997	8275	211272
Q2 2012	202997	8275	211272
Q3 2012	202997	8275	211272
Q4 2012	202997	8275	211272
Q1 2013	202997	8275	211272
Q2 2013	202997	8275	211272
Q3 2013	202997	8275	211272
Q4 2013	202997	8275	211272
Q1 2014	202997	8275	211272
Q2 2014	202997	8275	211272
Q3 2014	202997	8275	211272
Q4 2014	202997	8275	211272
Q1 2015	202997	8275	211272
Q2 2015	202997	8275	211272
Q3 2015	202997	8275	211272
Q4 2015	202997	8275	211272
Q1 2016	202997	8275	211272
Q2 2016	202997	8275	211272
Q3 2016	202997	8275	211272
Q4 2016	202997	8275	211272
Q1 2017	202997	8275	211272
Q2 2017	202997	8275	211272

Platzer

Start	Q2 2012
End	Q2 2017
Frequency	Q
Name	PLATZER FASTIGHETER - NUMBER OF SHARES
Code	W:PLFA(NOSH)

	$$"ER", E1(Adjustment (AR)		
Q2 2012			
Q3 2012			
Q4 2012			0
Q1 2013			0
Q2 2013			0
Q3 2013			0
Q4 2013			0
Q1 2014	75747	20000	95747
Q2 2014	75747	20000	95747
Q3 2014	75747	20000	95747
Q4 2014	75747	20000	95747
Q1 2015	75747	20000	95747
Q2 2015	75747	20000	95747
Q3 2015	75747	20000	95747
Q4 2015	75997	20000	95997
Q1 2016	75997	20000	95997
Q2 2016	75997	20000	95997
Q3 2016	75997	20000	95997
Q4 2016	75997	20000	95997
Q1 2017	99934		99934
Q2 2017	99934		99934

Wallenstam

Start	Q2 2010
End	Q2 2017
Frequency	Q
Name	WALLENSTAM 'B'
Code	W:WBYF(NOSH)

Q2 2010	53250
Q3 2010	53250
Q4 2010	53250
Q1 2011	53250
Q2 2011	53250
Q3 2011	154750
Q4 2011	154750
Q1 2012	154750
Q2 2012	154750
Q3 2012	154750
Q4 2012	154750
Q1 2013	154750
Q2 2013	154750
Q3 2013	152750
Q4 2013	152750
Q1 2014	152750
Q2 2014	152750
Q3 2014	152750
Q4 2014	152750
Q1 2015	152750
Q2 2015	152750
Q3 2015	305500
Q4 2015	305500
Q1 2016	305500
Q2 2016	305500
Q3 2016	305500
Q4 2016	305500
Q1 2017	305500
Q2 2017	305500

Source: Own contribution based on (Thomson Reuters, 2017)

10.3 Compiled data from annual reports about market for the areas

Stockholm inner city CE	2008	2009	2010	2011	2012	2013	2014	2015	2016
average rent max	4700	3800	3900	4400	5300	5300	5400	5600	7500
average rent min	4200	3200	3400	3800	3800	3800	3800	3700	4500
average min max	4450	3500	3650	4100	4550	4550	4600	4650	6000
Change of average rent (min max)		-21,35%	4,29%	12,33%	10,98%	0,00%	1,10%	1,09%	29,03%
Vacancy rate	5%-8%	6,5%	7%	4,50%	4%	4%	4%	4%	2%
Yeild		5,25-5,5	4,75-5	4,4-4,9	4,25-5	4,5	4,25-5	3,75-4,5	3,25-4

Stockholm inner city ex	2008	2009	2010	2011	2012	2013	2014	2015	2016
average rent max	3400	2400	2500	2650	3400	3400	3600	3800	5500
average rent min	2000	1700	1800	1900	2000	2000	2200	2400	3000
average min max	2700	2050	2150	2275	2700	2700	2900	3100	4250
Change of average rent (min max)		-0,24	0,05	0,06	0,19	0,00	0,07	0,07	0,37
Vacancy rate	10,00%	10,5%	9,5%	7,5%	7%	6%	6,50%	5,50%	4,00%
Yeild		5,75-6,25	5,25-5,75	4,9-5,5	4,75-5,25	4,75-5,25	4,75-5,25	4,25-5	3,75-4,5

Solna business park	2008	2009	2010	2011	2012	2013	2014	2015	2016
average rent max	2000	2000	1900	2000	2200	2400	2400	2450	2700
average rent min	1200	1700	1700	1800	1800	1800	1800	1900	2400
average min max	1600	1850	1800	1900	2000	2100	2100	2175	2550
Change of average rent (min max)		0,16	-0,03	0,06	0,05	0,05	0,00	0,04	0,17
Vacancy rate	11%	11%	9%	10%	10%	9%	10%	10%	4%
Yeild		5,25-7	5,75-6,25	5,5-6	5,5-6,5	5,5-6,5	5,5-6,25	5-5,75	4,25-5

Solna arenastaden	2008	2009	2010	2011	2012	2013	2014	2015	2016
average rent max	-	1700	1900	1900	2200	2500	2600	2750	3100
average rent min	-	1400	1400	1500	1600	1600	1800	1900	2500
average min max		1550	1650	1700	1900	2050	2200	2325	2800
Change of average rent (min max)			0,06	0,03	0,12	0,08	0,07	0,06	0,20
Vacancy rate		12%	18%	20%	12%	9%	8%	6%	2,50%
Yeild		6,5-7	5,75-6,25	5,5-6	5,5-6,25	5,5-6,25	5,25-6	4,75-5,75	3,75-4,75

Hammarby sjöstad	2008	2009	2010	2011	2012	2013	2014	2015	2016
average rent max	2000	1800	1600	1800	2100	2500	2500	2900	3000
average rent min	700	1500	1400	1500	1500	1500	1600	1700	2200
average min max	1350	1650	1500	1650	1800	2000	2050	2300	2600
Change of average rent (min max)		0,22	-0,09	0,10	0,09	0,11	0,02	0,12	0,13
Vacancy rate	14%	13,5%	18%	20%	20%	10%	9%	7,50%	4,50%
Yeild		6,5-7,5	6,25-6,75	6,1-6,6	6-6,5	6-5,5	5,5-6,25	5,0-6,0	4,25-5
yeild max		7,50%	6,75%	6,60%	6,50%	6%	6,25%	6%	5%

Source: Own creation based on (Fabege, 2008-2016)

10.4 Compiled data from annual reports about the company's properties

Company data from annual report

Stockholm inner city	2008	2009	2010	2011	2012	2013	2014	2015	2016
Antal	43	45	42	38	37	34	29	29	29
Uthyrningsbar yta	551	547	501	437	475	470	402	403	400
Marknadsvärde,	13637	16417	16215	16809	16350	16375	15262	17064	21513
Hyresvärde,	1217	1248	1167	1181	1197	1211	1040	1048	1037
Kvarvarande avtalslängd,		3,6	3,3						2,8
Ekonomisk uthyrningsgrad,	35	3100%	3000%	3200%	3300%	3200%	3400%	3400%	3500%
	35%	31%	30%	32%	33%	32%	34%	34%	35%
Vacancy rate	5%	3%	10%	8%	7%	8%	6%	6%	5%
Yeild	6%	6%	5,50%	5,40%	5,30%	5,25%	5,10%	4,64%	4,17%

Solna	2008	2009	2010	2011	2012	2013	2014	2015	2016
Antal	34	36	34	37	37	33	33	38	38
Uthyrningsbar yta	433	434	462	455	503	547	509	570	557
Uthyrningsbar yta Solna bus	-		208059	207705	207153	208194	208115	207883	216287
Uthyrningsbar yta Arenasta	-		135280	128935	177750	213525	210258	210921	212382
Uthyrningsbar yta övrigt	-		118170	117324	117337	125721	30460	151260	128237
Marknadsvärde,	8244	8502	8333	8856	11904	13555	14419	13918	22014
Hyresvärde,	722	735	685	720	840	966	923	1022	1014
Kvarvarande avtalslängd,		3,9	4						3,9
Ekonomisk uthyrningsgrad,	90	91	86	88	90	94	94	93	94
Vacancy rate	0,1	0,09	0,14	0,12	0,1	0,06	0,06	0,07	0,06
Yeild	6,5	6,50%	6,40%	6,20%	6%	5,95%	5,72%	5,12%	4,83%

Hammarby sjöstad	2008	2009	2010	2011	2012	2013	2014	2015	2016
Antal	13	13	12	13	13	13	11	11	11
Uthyrningsbar yta	147	146	132	130	126	124	118	118	105
Marknadsvärde,	1890	1943	1987	2215	2515	2770	2731	3200	3938
Hyresvärde,	175	184	175	178	205	213	223	223	224
Kvarvarande avtalslängd,		2,4							2,5
Ekonomisk uthyrningsgrad,	83	81	82	84	88	90	88	85	92
Vacancy rate	0,17	0,19	0,18	0,16	0,12	0,1	0,12	0,15	0,08
Yeild	6,9	7%	6,60%	6,30%	6,30%	6,15%	5,92%	5,45%	4,93%

Övrigt	2008	2009	2010	2011	2012	2013	2014	2015	2016
Antal	61	54	9	9	8	6	7	5	4
Uthyrningsbar yta	263	242	25	25	26	1	1	1	0
Marknadsvärde,	2440	2331	270	270	267	84	87	97	377
Hyresvärde,	255	244	19	19	18	1	0	1	0
Kvarvarande avtalslängd,									
Ekonomisk uthyrningsgrad,	92	85	88	88	85	100	100	100	34
Vacancy rate	0,08	0,11	0,12	0,12	0,15	0,00	0,00	0,00	0,06

Source: Own creation based on (Fabege, 2008-2016)