UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

Financial Economics

Unlocking Value from Within

Exploring Ownership's Impact on Discounts to Net Asset Values in the Swedish Real estate market

Bachelor thesis 15 hp

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Spring term 2023

Abstract

In recent times, the economy has undergone a rapid transformation, characterized by a notable increase in interest rates. As a consequence, real estate firms have been particularly impacted by these changes. This paper aims to investigate whether the type of ownership in a firm can influence the discount to net asset value. Specifically, we explore the relationship between institutional ownership and the magnitude of discounts. Our findings reveal a negative relationship between the level of institutional ownership and the extent of discounts observed. This suggests that firms with higher institutional ownership may experience reduced discounts, which can be attributed to the potential benefits of effective monitoring and expertise provided by institutional investors. Moreover, in addition to institutional ownership's impact on discounts, our study identifies significant relationships between size, return, and risk. These findings contribute to a broader understanding of the factors influencing the valuation of firms in the current economic landscape.

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1. Introduction

1.1 Background

The large importance of the real estate sector makes it an interesting subject to research. In 2017, commercial real estate accounted for approximately 40% of the Swedish GDP. It is a capital intensive sector with large amounts of debt as a result. This intervenes the real estate sector to the banking sector. Failing real estate companies would put a lot of pressure on Swedish banks. According to the Swedish state owned Riksbanken, the biggest risk of a Swedish financial crisis is the event of failing real estate companies (Riksbanken, 2017). When writing this in May 2023, real estate stocks have plummeted due to rising interest rates. The direct market for real estate has slowed down drastically with 70% fewer transactions Q1 2023 than Q1 2022 and several companies are seriously threatened by bankruptcy. (Fastighetsnytt, 2023). Whilst this is shown immediately in the stock market, companies still value their assets high. This increased spread has increased the discounts to NAV to almost unprecedented levels, making this subject highly interesting.

In property companies the share price is mostly derived from the underlying assets rather than the profit streams generated by the business as it is in other sectors (Adam & Venmore-Rowland, 1989). That is, the value of the properties the company possesses deducted by the liabilities of the company should reflect the value of the company. This is called the net asset value (NAV) and is frequently used as one of the most important metrics when evaluating companies operating in the property business (Ke, 2015). A real estate company has its real estate investments appraised on an annual basis, often from external auditing firms. Due to not being valued as often, a real estate company's stock price tends to deviate from its NAV. This undermines theories about an "efficient market" and hence "the law of one price", which says that the value of the stock, which is traded in the equity market, should reflect the value of the underlying assets, determined in the direct market. However, as the relationship between stock price and NAV rarely holds, especially for real estate companies, investors often talk about a discount or a premium to net asset value. This is the difference between the value of the company based on its share price, and the underlying net asset value. If the share price is higher than the NAV there is a premium, and if it is lower there is a discount.

There have been several studies examining the reasons for a deviation between real estate companies' stock price and NAV, and the results are divided by two aspects. Firstly, firm-specific factors such as size, leverage, tax, risk and other key metrics, and secondly, market-driven factors, primarily market and investor sentiment. Our study will further examine firm-specific factors with focus on the companies' ownership structure. Previous studies have demonstrated the significance of ownership structure in influencing performance related metrics. Relevant variables for us to achieve a conclusion to our research are institutional ownership, if the CEO is the largest owner etc.

This paper strives to:

i) determine the level of discount or premium for each company

ii) examine underlying firm specific factors, and especially

iii) discuss the effect of corporate governance (ownership structure) on the deviation between the stock price and NAV.

1.2 Problem description and problem analysis

At a fundamental level, the price for a property company should reflect the investment value of its property holdings. As mentioned, this is often not the case as several property companies either trade at a discount or a premium. This means that there's a difference between the company's market capitalization and net asset value. If there's shown to be a difference, the market values the underlying assets differently to indirect ownership of the assets through shares. For an efficient market, this phenomenon should not exist. We will examine why several property companies trade at this inefficient price and see what firm specific factors are significant in explaining this. Our goal is to direct the essay towards an ownership perspective where we show the importance of corporate governance on a company's key metrics and in turn the deviation between its stock price and NAV.

1.3 Purpose of study

The purpose of this study is to examine the phenomena of discount/premium NAV and what underlying factors that are affecting this. We focus on Swedish listed real estate companies.

Since there's some previous similar work done within this field, even on Swedish listed property companies, we will base much of our study on previous work and further examine the impact of owner structure since the research in this area is very vague. We will still test the variables that have shown to be significant in explaining the discount to NAV previously, but our focus will be to analyze the effect of ownership structure within the company. With ownership structure we look into the amount of institutional ownership, if there is insider ownership and how large the capital stake that the "large" investors have respective to the smaller investors, noise traders. With this focus, we believe that we can contribute with important results on the field.

2. Theoretical framework

2.1 The Ownership Perspective

This thesis will take an ownership based approach where we will examine the ownership structure's influence on discount. We will look at this from different perspectives to see if and how these relate to each other. We will divide the shareholders into two groups: institutional and non institutional investors. Institutional investors could be hedge funds, pension funds, investment banks etc. The other group will be the investors who solely possess an insignificant part of the outstanding shares. A large part of these investors are believed to be so called noise traders. Noise traders are investors that are uninformed or unskilled and rather than taking decisions based on well conducted analysis, they take investment decisions based on for example emotions, gut feelings and other irrational variables. A large proportion of noise traders would add more risk to the stock since their irrational trading can fluctuate the price in a direction that differs from the "correct" valuation. This additional risk would decrease the stock price and would hence increase the discount to NAV. Compared to noise traders, institutional investors have better expertise and larger capital at stake. This gives them an incentive to monitor the management so that the management and the shareholders interests are aligned. This would suggest a higher share price and hence a lower discount / higher premium. Other than only monitoring and aligning incentives, certain types of investors choose certain companies to invest in. Pension funds might have other time horizons and incentives than hedge funds and individual investors.

A third perspective that will be looked at is if the CEO also is the largest shareholder. If this is the case, the incentives of the management and the shareholders should already be fairly aligned, hence a reduced principal-agent problem and smaller need for monitoring from the shareholders.

These three perspectives will, together with other firm specific variables such as size, leverage, risk and more, be researched to see what impact they might have on discounts/premiums to NAV.

Discounts to NAV are often discussed in different forums. When looked at first glance it can be perceived as a real discount, but the reality is that the discount often is explained by different factors. A non-institutional investor that does not have any professional experience

of trading can easily be perceived by the discount and thinking that he makes a good investment just on the fact that the stock is trading at a "discount". This could be the explanation if a stock with a lot of non institutional investors would be correlated with a large discount.

Discounts can either be explained by too high valuation of the assets, or a too low stock price. How much can the owners affect the asset valuation? The regulation is strong in this area but it should be possible to value your properties at the higher levels, hence increasing your balance sheet - and increasing the discount to NAV.

2.2 Efficient market - Law of one Price

The law of one price is fundamental for an efficient market. In the context of valuation of property companies the value of the stock should reflect the value of the underlying assets. The concept of LoP indicates that the price traded in the equity market should be equal to the value in the direct market. If this is not the case, according to the theory the market is inefficient and arbitrage opportunities exist. However, for the LoP to hold the two commodities have to be identical. The two commodities in this paper are the share and the property. As mentioned earlier, the share price should represent the value of the properties, but even so the commodities are not identical. Even though the commodities are not identical, they are very similar, hence the price should be similar as well. If large deviations exist there could be arbitrage opportunities. This leads into the Efficient Market Hypothesis (EMH). According to the EMH, stock prices in efficient markets reflect all available information, including the underlying net asset value of the stocks. Because of this, stocks always trade at fair values, and buying undervalued stocks / selling overvalued stocks should not be possible. When applying this hypothesis to the research question, the discounts / premiums should all be explained by several factors. However the hypothesis does not apply to the property market, and as the share is traded at fair value, this could apply that the book value of the properties are off.

2.3 Valuation of property companies

Adam & Venmore-Rowland have conducted important research on the subject of valuation of property companies. Unlike other businesses where financial theory says that the stock price should be the present value of all future cash flows. Property companies are different since their underlying assets are priced in the direct market and possess growth potential. The researchers conclude that because of these special characteristics, a valuation based on the underlying assets reflects the long term company value better than the present value of the future cash flows (Adam & Venmore-Rowland, 1989).

Although it is true that real estate companies are valued based on the value of the real estate, the real estate itself is partly valued by its cash flows.

The Discounted Cash Flow model values an investment today based on cash flows that will be received in the future. The time value of money says that money is worth more today than in the future. Because of this, the future cash flows must be discounted to reflect its value today by, for example, the cost of capital.

The cost of capital is the minimum return necessary from the investment for the investors to break even. The cost of capital is based both on the cost of debt and the cost of equity, and will be higher if the investment is riskier.

Valuation of Swedish commercial real estate is based on a discounted cash flow model, more specifically on the operating net cash flows. The rents paid by the tenants is subtracted by the costs of the operation. These are tariff-related costs such as heat and electricity, property costs such as reparations, and lastly planned maintenance costs such as renovations. When subtracted from the rental revenue the operating net cash flows is obtained. The cash flow can then be forecasted and discounted, and together with price information of similar properties sold a solid valuation can be achieved. (Elvinsson, A. Johansson, M, 2023)

2.4 EPRA NAV

EPRA, the European Public Real Estate Association, created the EPRA NAV in 1999, a more sophisticated metric that should reflect the underlying assets better than the regular NAV. The difference between EPRA NAV and NAV is the addition of derivatives and deferred tax to the equation, making the metric more reflective of the true underlying value of the asset. The

EPRA NAV reflects the long term true value of the asset better since the deferred tax is the tax that is expected to be paid when liquidating the asset.

$$EPRA\ NAV\ =\ NAV\ +\ derivatives\ +\ deferred\ tax$$

For our paper we will use the EPRA NAV per share to adjust for the changes in amount of shares during the companies' history. So, during this study EPRA NAV is the per share value.

2.5 Discount

A discount to Net Asset Value is the definition of a company's stock trading at a lower price than its underlying assets. It can be calculated by taking EPRA NAV at time t, minus company i's stock price, divided by its EPRA NAV at time t.

$$Discount_{it}\ =\ \frac{EPRA\ NAV_{it} - Stock\ Price_{it}}{EPRA\ NAV_{it}}$$

A positive number indicates that the stock trades at a discount and a negative number means that the stock is trading at a premium. Gustafsson and Peng (2016) present a figure showing the concept of Discounts and Premiums to NAV:

Figure 1 Concept of Discount and Premium to NAV
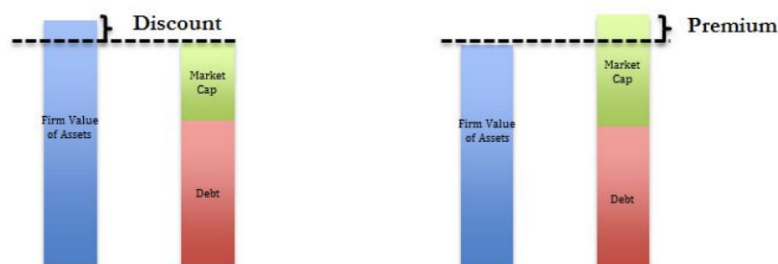
2.6 Net Tangible Assets, NTA

In later annual reports among the chosen companies the definition of NAV has been changed to NTA. Net Tangible Assets is defined as the value of all physical assets minus all liabilities in a business. With other words, it does not contain intangible assets as NAV (Corporate Finance Institute, 2022). Property companies in general possess few intangible assets other than goodwill. In most cases goodwill is a very small part of the total assets hence the NAV and NTA would be fairly similar.

3. Literature review

3.1 Institutional ownership

Our primary focus for the ownership perspective is the effect of institutional ownership on discounts. Morri and Baccarin (2016) argue that institutional ownership should be negatively correlated with the discount to NAV for two reasons. Firstly, institutional investors should make investments that outperform investments made by "normal" investors, and secondly, the presence of institutional investors should make bad decisions by the management less likely. Furthermore, Malkiel (1995), Barkham and Ward (1999), Clayton and MacKinnon (2000) and Morri et al. (2005) all analyzed institutional ownership with mixed results.

Cornett et al. (2007) research the relationship between institutional ownership and operating cash flow returns in the S&P 100 firms. They find that there is a significant positive relationship between the percentage of institutional ownership in the firm and the firm's operating cash flow returns. The reason for this, according to the authors, is that institutional investors are more willing to use their ownership rights to pressure the management in making decisions that's in the shareholders best interest. In our research, a higher operating cash flow should lead to a higher price, which would suggest that institutional ownership and discount to nav should be negatively correlated.

Fung and Tsai (2012) looks at the relationship between institutional ownership and firm performance through capital expenditures. CAPEX plays a big role in real estate firms and this paper is therefore important for our research. Within the institutional ownership group some sub groups have a larger impact on firm performance than others. In particular they find that it is the more informed and independent investment advisors that have a positive impact on firm performance through their impact on CAPEX decisions via monitoring of the management. On the contrary, according to Fung and Tsai (2012), short term investors such as hedge funds, and less independent investors such as insurance companies and banks don't have a big impact on firm performance. Like previously mentioned studies, Lin and Yongija (2017) find similar results in the Chinese stock market, that institutional ownership has a significant positive impact on firm performance largely due to monitoring effects. As with the study by Cornett et al. , Lin and Yongija (2012) also divide the institutional owners in pressure insensitive (foreign and large institutional investors) and pressure sensitive

(domestic and small institutions). Just like Cornett et al. they find that pressure insensitive institutions have a greater effect on firm performance than pressure sensitive institutions.

3.2 Large shareholders and noise traders

Jung et al (2016) developed a model to derive endogenous relationships among firms' ownership structures, managerial incentives, and asset returns. They find ownership concentration to be positively related to managerial incentives and negatively related to a company's expected stock return and volatility. Companies that are for example less productive, riskier and have more sensitive earnings tend to have faster convergence of these variables. Our perspective on the role of large shareholders as mediators is motivated by prior research that highlights the importance of large shareholders in influencing corporate governance (e.g., see Shleifer and Vishny, 1997; Burkart, Gromb, and Panunzi, 1997). We use these studies as a benchmark to examine how ownership influences discount to NAV. To differentiate small and large shareholders, small investors trade continuously while block shareholders trade on discrete sets of dates.

The opposite of the so-called large shareholders are as mentioned the noise traders who base large parts of their decisions on non-fundamental data such as rumors, gossip, gut-feelings etc. (Rehkugler, Schindler and Zajonz). The presence of noise traders creates a new type of risk other than the fundamental risk. The noise trader risk is the risk that uninformed, irrational investors take hasty decisions based on non-fundamental information. This risk will make equilibrium prices shift permanently from its fundamental values, even if there is no fundamental risk (Mueller and Pfnuer, 2013). Berkham and Ward (1999) conducted research about noise traders in UK listed property companies and found that discounts can partly be explained by the presence of noise traders.

3.3 Insider ownership and Stock Market Performance

There is plenty of previous research about managerial incentives. Kesner (1987) was among the first to investigate managerial ownership and stock performance. His findings was that in rapid growth, businesses managerial ownership had a positive effect on firm performance. In the study of Clayton and MacKinnon (2000) they conclude that if the directors of the

company are important shareholders there is less likelihood of conflicts of interest between the non-directional shareholders and the management. This would suggest lower discounts in firms with high insider ownership. Ju and Zhao (2012) researched whether independent directors' ownership could decrease discounts in closed end funds. This paper is interesting in our research since property companies could be seen as a form of fund, but the investments consist of real estate instead of companies. One source of discount that they mention as important are the agency costs caused by the principal-agent situation between fund managers and the shareholders. Thus they found that the presence of directors with large ownership is negatively correlated with discounts because managers with ownership are more likely to take appropriate measures that decrease discounts since their interests are aligned with the shareholders interest. Lilienfeld-Toal and Frenzi (2014) conducts research about CEO ownership and stock market performance. They find similarly to the others that firms with high managerial ownership tend to outperform firms who´s CEO does not hold a large part of the stock. The effect is highest amongst firms with high managerial discretion. The Principal-agent problem would not arise if the CEO is a large shareholder, which could be one possible explanation of why these firms tend to outperform others. If the CEO also is a large shareholder the CEO´s interests are more aligned with the shareholders. They conclude that the incentive based explanation plays a bigger role than the principal-agent explanation that only plays a minor role. a principal-agent problem would not arise if the CEO is a large shareholder, which could be one possible explanation of why these firms tend to outperform others. Sagax, Wallenstam, Balder and SBB are companies in our sample in which the CEO also is the largest shareholder. During this work Rutger Arnhult will become CEO for Corem (again) who is the founder and still the largest owner. Since the discount is reduced with higher stock price, then according to this theory CEO ownership and discount should be negatively correlated. That is, a higher stock price decreases the discount.

3.4 Other firm-specific factors

For risks other than noise trader risk, there is stock volatility which is measured by taking the average standard deviation of daily stock return in the preceding year. Volatility serves as a proxy for risk in the subject stock. Risk as a variable was first analyzed by Bond and Shilling (2004), who tried to disentangle the effect of operational risk on discount from that generated by leverage and other factors. The result was a positive relationship between total risk and

unsystematic risk and NAV discount. Brounen and Ter Laak (2005) on the contrary did not find any significant relationship between firm risk and discount to NAV. Ke (2015) and Adams and Venmore-Rowland (1990) have found that risk is a driver of discount. Therefore, the risk coefficient is hypothesized to be positively correlated with discount according to Gustafson and Peng (2016).

As for the variable Leverage, Barkham and Ward (1999) measures debt as a percentage of total balance sheet value whereas they expect it to be positively correlated. In their results they mention that leverage appears to be insignificant to discount to NAV. In contrast, Clayton and McKinnon (2000) find that the level of premium is positively correlated to the debt to equity ratio. Further, Brounen and Ter Laak (2005) highlight the effect leverage has on risk and therefore also the discount to NAV. This is in line with the conclusion Bond and Shilling (2004) made: "Since leverage increases risk the variable is expected to be positively correlated to discounts". According to Morri, MacAllister and Ward (2005) debt could have an impact on the discount to NAV. This paper shortly conducts an example: A firm with no debt and book assets worth $100, which trades at $80 in the market, has a discount of 20%. If the firm were to issue debt of $40 to repurchase $40 equity, the book value of net assets will fall to $60, but the market value of shares will be $40 (all else equal). The discount would increase to 33%. They mention that higher levels of leverage tend to lead to higher discounts. Based on previous work, Morri and Baccarin (2016), include leverage as a variable to measure discount to NAV. They express it as gross debt to average total assets which is a proxy used in several previous studies. Despite no expectation about the slope of the coefficient they expect to find a lower relevance for leverage in the model of unlevered NAV discount. As this study examines the discount to NAV for several countries we won't go into these details, but they find leverage to be significant in all cases considered.

A lot of previous studies, Capozza and Lee (1995) for example, have shown that the size of the company and the discount to NAV has negative correlation. Adams and Venmore (1990) mention that the property market, a market where a lot of capital is needed, has large entry barriers. These barriers lead to inefficient pricing for smaller companies which opens up for large profits to be made. Larger firms are often more fairly priced and they can both easier and cheaper get funding and take advantage of these possible discounted offers. Large corporations can for example acquire smaller competitors cheaply during times of distress, as

was shown by Balder when acquiring 50% of the shares of Karlatornet in Gothenburg from Serneke after the outbreak of Covid-19.

The effect of diversification on NAV discount is uncertain. On the one hand, general economic theory suggests that diversification reduces risk, and consequently that diversification should lower the NAV discount. On the other hand, modern theories argue that more specialized REITs are capable of developing critical skills in the market they operate in, and hence suggest that diversification is a negative factor. Bond and Shilling (2004), Capozza and Lee (1995), Brouuen and Ter Laak (2005) and Clayton and MacKinnon (2000), tested the relationship between investment focus and discount with mixed results.

Table 1 Summarize of results from previous research

	SIZE	LEVERAGE	RISK	RETURN	INSTITUTIONAL OWNERSHIP	INSIDER OWNERSHIP
Adams and Venmore-Rowland (1990)	**-**	**0**	**+**	**n/a**	**n/a**	**n/a**
Capozza and Lee (1995)	**-**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Barkham and Ward (1999)	**+**	**0**	**n/a**	**-**	**n/a**	**n/a**
Clayton and McKinnon (2000)	**-**	**-**	**n/a**	**n/a**	**n/a**	**n/a**
Bond and Shilling (2004)	**0**	**+**	**+**	**n/a**	**n/a**	**n/a**
Brounen and Ter Laak (2005)	**-**	**+**	**0**	**0**	**n/a**	**n/a**
Morri, MacAllister and Ward (2005)	**0**	**-**	**+**	**-**	**n/a**	**n/a**
Cornett et al. (2007)	**-**	**n/a**	**n/a**	**-**	**-**	**n/a**
Rehkugler et al (2012)	**0**	**0**	**+**	**0**	**n/a**	**n/a**
Ke (2015)	**-**	**+**	**+**	**-**	**n/a**	**n/a**
Gustafson and Peng (2016)	**-**	**-**	**+**	**-**	**n/a**	**n/a**
Morri and Baccarin (2016)	**n/a**	**n/a**	**+**	**-**	**-**	**n/a**
Ju, Y. and Zhao, L. (2014)	**-**	**n/a**	**n/a**	**n/a**	**-**	**-**
Lin and Yongija (2017)	**n/a**	**n/a**	**n/a**	**n/a**	**-**	**n/a**

+   positive relationship between the variable and discount to NAV
-    negative relationship between the variable and discount to NAV
0   the variable is not find significant for explaining discount to NAV
n/a   the paper doesn't examine the variable

4. Method and Data

4.1 Method

The most suitable method for this paper is a quantitative approach. There has been a lot of work towards the final model specification. For most of the previous studies the models have looked similar, but there have been smaller differences due to the paper's focus. For our study we want to examine the effect of how the ownership structure is set up within the company. This part of the thesis has been challenging as there are a lot of shortcomings in data for this part, and a difficulty to form concrete variables examining our purpose. We decided to test three variables focusing on the ownership perspective, whereas we use institutional ownership as our main independent variable. To get a correct and full view of what factors are driving a deviation between NAV and stock price, we include the most commonly used firm-specific factors of previous studies. From our theoretical framework and literature review we have also discussed the relation between ownership structure and some key metrics of the companies. We therefore found it useful to include interaction variables highlighting these theories. The model specification was divided into three parts when running regression in STATA. We have run regression for panel data as there is cross-sectional variation between the companies and a time series from 2012 to 2021. With other words, it's the same companies used for all variables and it's all measured for the same time period. For the first regression we began with our dependent variable discount and our main independent variable institutional ownership. Following, the control variables are added and in the last regression we included two interaction variables.

As mentioned, it's been a challenge forming the most suitable model specification for our research. We chose variables that were shown to be significant in previous research but at first there were too many. To be able to present a model and analysis that can be meaningful it's important that it is robust. Adding too many variables will reduce the credibility, hence we have considered them against each other. Although the model should be reduced, we have tried to identify the most vital and related factors and use them as control variables in the model. This to avoid them being in the unexplained error term and hence meet an endogeneity problem. With our subject in mind, it is almost impossible to avoid this by including more control variables as there most certainly are many different factors related to

both the ownership variables and the firm-specific factors, that are unidentified. The data set we use demands a regression for panel data as we have both variation between the companies for the same year, and within variation for different years within a company. To be able to measure the causal effects of firm-specific factors' effect on discount it could be valuable to get rid of the between variation for the factors that will remain constant for the companies. For our case, that could be the regions in which they have business or different property types they focus on. One way to handle this problem is to use fixed effects when running the regressions. When doing pre-tests of fixed effects, we found the results not to be significant and not applicable to our data set, which can be argued to be a downside. Although our model still has the variation between the companies which could be important for the analysis. Furthermore, clustered standard errors are not used in these main regressions. More comments on this will follow in the data section.

4.1.1 The model specification

The following variables need extra clarification, RISK, LIQUIDITY, INSTITUTIONAL and LARGE. In *Table 2* all the variables will be presented together with their expected sign.

RISK - The risk is often measured as the volatility which normally serves as a proxy. For example the daily average volatility for the stock. More closely it's calculated by taking the average standard deviation of daily stock performance in the preceding year. We had a hard time finding suitable historic values for this, hence we use beta. More specifically, we use a ten year monthly Beta which is the measure of the company's stock price volatility relative to market price volatility for a ten year duration. According to Refinitiv Eikon it's calculated using monthly closing price change values. The Beta is levered in this case.

LIQUIDITY - Measured as current ratio. The company's current assets divided by the current liabilities. A measure below one would indicate that the company is not able to meet its short-term liabilities.

INSTITUTIONAL - The amount of the company's stock owned by large entities managing funds on behalf of others. With data from Refinitiv Eikon the investors can be classified as either Corporation, Investment Advisor/Hedge Fund, Investment Advisor, Sovereign Wealth Fund, Pension Fund, Individual Investor, Hedge Fund, Bank and Trust, Foundation,

Insurance company, Private Equity, research Firm, Venture Capital, Other Inside Investor. We have sorted the percentage ownership for each class of investor for each of the companies. The added sum of the values that can be classified as institutional owners is the percentage used as an observation for our data.

LARGE - This variable is the percentage of shares that is owned by the 500 largest investors of the stock. This information was gathered from Refinitiv Eikon on a yearly basis and is used to test for the effect of large owners vs noise traders.

Table 2 Definitions and expected effect on discount to NAV

Variables	Definition	Expected signs
INSTITUTION	Percentage of institutional ownership	**-**
SIZE	Natural logarithm of market capitalization	**-**
LEVERAGE	Debt to equity	+
LIQUIDITY	Current ratio	?
RETURN	Earnings per share	-
RISK	Beta	+
LARGE	Percentage of so called large owners	-
CEO	Dummy, CEO largest owner = 1	-
INSTITUTION*SIZE	Interaction	-
LEVERAGE*RISK	Interaction	+

MODEL SPECIFICATION

DISCOUNT = β0 + β1 INSTITUTION + β2 SIZE + β3 LEVERAGE + β4 LIQUIDITY + β5 RISK + β6 RETURN + β7 LARGE + β8 CEO + β9 INSTITUTION*SIZE + β10 LEVERAGE*RISK + ε

DISCOUNT

$$DISCOUNT \ = \ \frac{EPRA\ NAV_{it} - Stock\ Price_{it}}{EPRA\ NAV_{it}}$$

4.2 Data

In this section there will be more explaining of the chosen companies and the screening process. We begin by going through how we collected our data and the screening process. Next section will describe the cleaning of the data and analyze the descriptive statistics.

4.2.1 Collection and screening

The final sample consists of 16 Swedish property companies listed on the Stockholm Stock Exchange with focus on either or both residential and commercial properties. Data was gathered back to 2003 but due to shortcomings in data and the fact that some companies are young, we pick data from 2012. At the time of writing this thesis most of the companies had not released their annual reports for 2022, hence data is only analyzed for 2012 - 2021. The starting point was to include as many companies as possible out of the index OMX Stockholm Real Estate GI (SE0004383172). The companies used in this study are: Atrium Ljungberg, Castellum, Catena, Corem Property, Diös Fastigheter, Fabege, Balder, Fastpartner, Hufvudstaden, Nyfosa, Pandox, Platzer, Sagax, SBB, Wallenstam and Wihlborgs Fastigheter.

Some of these companies have only been trading publicly for a couple of years whereas others have been on the stock market during the whole timespan.

The data for this research are mainly key metrics and firm-specific values from balance sheet and income statements. The numbers have mainly been collected from Refinitiv Eikon and Capital IQ. To calculate the discounts we had to get the stock price at the end of each year and the net asset value per share. Stock prices were available at the mentioned sources but during collection of the net asset values in the annual reports we faced a challenge. Due to emissions and splits for some companies in some years, we had to manually calculate the present value of what was reported in previous years. This led to some small deviations in the reported share prices from the companies' reports and the prices from the public sources. In later stages the discounts have been calculated manually even though some companies reported some discounts.

Going through the discounts we made further changes for our screening process whereas we looked closer on which of the companies stand out regarding their business idea and niche. For example there are a few companies which rely on the construction part of the properties. NP3 Fastigheter and K-Fastigheter are two of them. These companies are part of the Stockholm Real Estate index but are not traditional real estate companies. Both NP3 and K-fastigheter also construct properties. Because of this, the share prices of these stocks are given on a different basis than the companies that were chosen to be included. When looking at NP3 a premium of 200% was found, which is based on future revenue streams from construction contracts rather than management of properties. Adding these companies anyway would have created disturbance in the data, and making the results weaker.

4.2.2 Cleaning and Descriptive statistics

All the values are per 31/12 for each year, except RISK which was presented in Refinitiv Eikon as one year ahead. Since this could lead to a so-called lag in the measures the variable is lagged. Further, the data has been winsorized to control for extreme values. By winsorizing we mitigate the outliers but not removing the effect of more extreme values. For our analysis it's important to keep values that stand out, as they probably are related to other variables we examine. Though, we don't want the outliers to have too much effect on the final outcome as it might skew the results. This is also why we avoid clustered standard errors which otherwise

often are used to reduce the effect of outliers. The following table presents values pre and post winsorizing. Values are provided through STATA.

*Table 3 Descriptive statistics, pre and post winsorization*

Variable	Observations	Mean	Std dev	Min	Max
DISCOUNT	140	-0.094	0.365	**-2.095**	0.48
DISCOUNT(w)	140	-0.091	0.345	**-1.54**	0.43
INSTITUTIONAL	140	0.374	0.183	0	0.81
INSTITUTIONAL(w)	140	0.373	0.182	0	0.75
SIZE	139	9.704	0.819	7.93	11.604
SIZE(w)	139	9.703	0.815	7.963	11.319
LEVERAGE	140	1.323	0.499	0.24	2.83
LEVERAGE(w)	140	1.322	0.494	0.25	2.56
LIQUIDITY	140	0.399	0.533	0.02	3.89
LIQUIDITY(w)	140	0.392	0.494	0.02	2.97
RISK	94	0.816	0.294	0.13	2.13
RISK(w)	94	0.816	0.294	0.13	2.13
RETURN	140	10.702	9.118	-7.83	**66.63**
RETURN(w)	140	10.519	8.175	-7.24	**40.51**
LARGE	136	0.787	0.112	0.418	0.955
LARGE(w)	136	0.787	0.110	0.500	0.9515

As shown, most of the values have not changed significantly when being winsorized. Worth mentioning is the minimum value for discount which increased from -2.095 to -1.54. This indicates that the minimum discount one of the companies has been traded at for one year between 2012 and 2021 is -154% or to a premium of 154%. The company is Sagax at the end of 2020. The measured value of -209,5% is the same company one year later. Comparing the

winsorized interval of -154% to 43% with the mean of -9.1% it can be stated that they are outliers, especially the minimum value. The used companies have an average institutional ownership of 37% and this varies from 0% to around 75%. It is only SBB for the years 2017 and 2018 which had no institutional owners. Pandox has the highest measured institutional ownership with an average of 73% during the years 2014 to 2021. Balder in 2021 is measured as the largest company and the least market capitalization among the sample is Catena 2013. The fraction of leverage is an average of 1.3 with Hufvudstaden having the lowest of 0.24 at the end of 2017 and Catena with the highest debt to equity at the end of 2012. The average liquidity is 0.39 which as mentioned in section 4.1 is low. The average company is not able to meet its current short-term liabilities. The beta, reflecting the risk of each company, has an average of 0.816 with SBB having the lowest value during 2018 (0.13) and Pandox the highest (2.13) for 2020. Note that this variable has least observations, but we still found this measure to be most suitable. Looking at the return the earnings per share varies from -7.24 to 40.51 after winsorizing, with an average of 10.519. The previous maximum value was 66.63 which indicates that winsorizing was necessary but there still prevails a large interval. All companies in the sample had a large ownership concentration of at least 41.8%, with Catena having the most in 2014 with 95.5%.

Table 4 Overview of the amount of observations per company
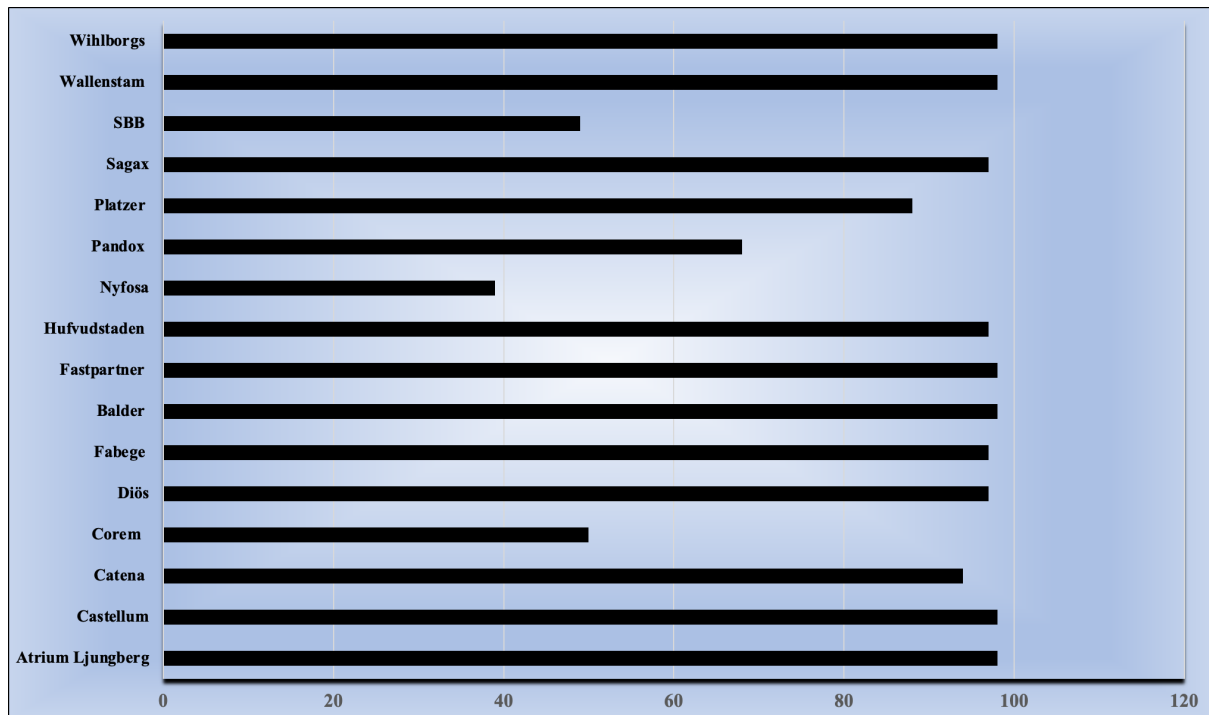
To avoid any faults and skewed results due to collinearity we test for correlations. If high correlation is shown standard errors will increase and most probably affect the significance levels of the variables in a disadvantageous way. To be in line with previous studies, primarily Gustafsson and Peng (2016) we follow the rule of thumb and look out for correlations exceeding (0.8).

Table 5 Correlations between the variables

	DISCOUNT	INSTITUTION	SIZE	LEVERAGE	LIQUIDITY	RISK	RETURN	LARGE	CEO
DISCOUNT	1.0000								
INSTITUTION	0.1881	1.0000							
SIZE	-0.2253	0.3945	1.0000						
LEVERAGE	0.0053	-0.2136	-0.6104	1.000					
LIQUIDITY	0.0494	-0.0502	0.0911	-0.1354	1.0000				

RISK	0.0245	-0.1495	-0.1106	0.1722	-0.0899	1.0000		
RETURN	-0.1455	0.1241	0.3021	-0.3657	0.2323	-0.2186	1.0000	
LARGE	-0.1670	-0.3258	-0.1629	0.0965	0.1557	0.3458	0.1454	1.0000
CEO	-0.4052	-0.3322	0.1470	0.1721	-0.0990	0.1950	-0.3295	0.0557	1.0000

With respect to the rule of thumb there are no correlations that need to be further analyzed just because of their correlation. Notably, the correlation between size and leverage exceeds (0.5) but we don't find it necessary to take any actions until we believe it could be the cause for an unexpected result.

5. Regression Results

In the following section we present the results from the regressions. First we give an overview of the values provided from STATA and then further explanation of the numbers and their meanings. In the table For each there's a reported coefficient and its p-value for each of the independent variables:

Table 6 Results provided from regressions in STATA

DISCOUNT	1		2		3	
	Coefficient	**P-value**	**Coefficient**	**P-value**	**Coefficient**	**P-value**
Constant	0.139	0.246	2.878	0.000***	4.511	0.000***
INSTITUTIONAL	-0.595	0.015**	0.000	1.000	-7.649	0.005***
SIZE			-0.256	0.000***	-0.495	0.000***
LEVERAGE			-0.150	0.187	0.320	0.150
LIQUIDITY			0.041	0.422	0.047	0.352
RETURN			-0.008	0.037**	-0.009	0.009***
RISK			0.115	0.185	0.807	0.011**
LARGE			-0.277	0.487	-0.208	0.578
CEO			-0.221	0.277	-0.190	0.244
INSTITUTION*SIZE					0.794	0.004***
LEVERAGE*RISK					-0.560	0.017**

*significance level 10%

** significance level 5%

***significance level 1%

5.1.1 Regression with institution

$$DISCOUNT = \beta 0 + \beta 1\ INSTITUTION + \varepsilon$$

INSTITUTION is shown to be significant at the 5%-level with a negative magnitude of -0.595. As mentioned, we measure INSTITUTION as a percentage of institutional ownership in the companies. This indicates that if institutional ownership in the company increases by one percent the discount will decrease by 0.595%. Our main independent variable can be concluded to be relevant and the sign is as expected. We stated in the literature review section with evidence from Cornett et al. (2007) that higher institutional ownership should indicate a lower discount. This result is also in line with other previous findings of Morri and Baccarin (2016) and Lin and Yongija (2012).

5.1.2 Regression including control variables

$$DISCOUNT = \beta 0 + \beta 1\ INSTITUTION + \beta 2\ SIZE + \beta 3\ LEVERAGE + \beta 4\ LIQUIDITY + \beta 5\ RISK + \beta 6\ RETURN + \beta 7\ LARGE + \beta 8\ CEO + \varepsilon$$

In column 2 we add our other factors for this research. Included in this regression are the control variables SIZE, LEVERAGE, LIQUIDITY, RISK, RETURN, LARGE and CEO. Now the institutional ownership has changed its coefficient to a positive magnitude. By the fact that the reported p-value is 1.000 the variable is no longer significant and we won't interpret it further.

As shown in the table, SIZE is significant at the level of 1% and shows an expected negative correlation of -0.256 with discount. As the variable is logarithmic we can interpret it by saying, if the company's market capitalization increases by one percent, the discount will reduce by 0.282%. The negative relationship is in line with previous studies of Capozza and Lee (1995), Ke (2015) and Gustafsson and Peng (2015).

RETURN shows significant effect on a 5% level with a negative coefficient of -0.008. As this measure is EPS in SEK we interpret it as for every extra Swedish krona in earnings per share, the discount decreases by 0.008%.

Our results indicate that LEVERAGE, LIQUIDITY, RISK, LARGE and CEO have no significant effect on discount to NAV.

5.1.3 Regression including interaction

DISCOUNT = β0 + β1 INSTITUTION + β2 SIZE + β3 LEVERAGE + β4 LIQUIDITY + β5 RISK + β6 RETURN + β7 LARGE + β8 CEO + β9 INSTITUTION*SIZE + β10 LEVERAGE*RISK + ε

As mentioned there's no significance in institutional ownership's effect on discount with inclusion of the control variables. We took a closer look on what could affect this by checking the correlations. SIZE, logged total market capitalization, has the highest correlation with INSTITUTION at a level of 0.395. This is not so high but we generated a new variable for interaction between these two. This variable shows significance at 1% level and a positive coefficient of 0.794. The results also show that the single variable INSTITUTION has changed and is now significant again. It reports a significance at 1% level and a negative magnitude of -7.649. Now it can be stated that a one percent increase in institutional ownership will lead to a 7.65% decrease in discount. A distinct effect compared to the first column. SIZE is still significant at 1% level, now with a negative coefficient of -0.495.

The negative relationship between SIZE and discount can be explained by that a larger company is traded more often and can be said to be more popular. More information is available so there's not as much room for "mis-valuation" of its stock price, hence the negative sign is likely. But this also means that a larger company tends to be valued towards a premium.

From previous studies we have seen that leverage has had mixed effects on the discount to NAV. We have mentioned that increasing leverage is associated with higher risk and this in turn is positively correlated with discount. Because of this fact an interaction variable was generated for leverage and risk (LEVERAGE*RISK), to see the possibility of any effect of

these two on our dependent variable. For our leverage measure, DE - Debt/Equity, we state that it is still insignificant. Though, the single variable RISK now shows significance on a 5% level with a positive coefficient of 0.807. The interaction of the leverage ratio and risk is also significant and has a negative effect in discount of -0.560. The negative effect is in line with Clayton and McKinnon (2000) who expected a positive correlation for Debt to equity ratio and premium. Though this result battles against the main argument we presented in the literature review for the relationship between leverage and discount. As with increasing leverage the book value can decrease, but the market value can still stay constant. This would lead to an increasing discount.

RETURN is still significant but now on 1% level with a negative effect of -0.009. For every extra Swedish krona in earnings per share, the discount decreases by 0.009%. For the variables LIQUIDITY, LARGE and the dummy CEO there's still no shown significance so we can't conclude that they affect the discount to NAV.

6. Discussion

6.1 Results

Following the results we can see that institutional ownership has a negative effect on discount to NAV both in the first and third column. As shortly mentioned above, the fact that institutional ownership indicates a lower discount was as expected. Under the theoretical framework we introduced that investors as pension funds, investment banks etc count as institutions and have an important role within the company. As those shares and capital stakes often are larger than others they have a more significant incentive to monitor the management and steer the company towards the interest of themselves. By being large investors they want their shares to increase in value which it does by the company's price rising. If the share price increases the discount will decrease, hence a higher institutional ownership will most probably indicate a lower discount, all else equal. According to the literature review presented some papers discussed combinations of these theories. Morri and Baccarin (2016) argued a negative relationship for two reasons. One that institutional investors have the goal to outperform investments made by "normal" investors. Secondly, would more involvement of institutions make bad decisions by the management less likely. Both of these arguments are aligned with the theory about their incentives to increase performance and shareholders value. Furthermore, Cornett et al (2007) discuss their findings about how higher concentration of institutions as investors should indicate a higher price as they found a positive relation between institutional ownership and the firm's operating cash flow returns. A higher price equals a lower discount, all else equal, hence a negative relation. Aligned with this lead, our results show the direct significance of the return and performance of the company. In Column 2 and 3 there is a negative correlation to discounts.

With the inclusion of the control variables in Column 2, INSTITUTIONAL became insignificant. Therefore there was a need to include an interaction variable between institutional ownership and one of the other variables. Shown in table 5 the correlation with size was highest with (only) 0.395. As institutions often own larger stakes within companies some correlation with size could be expected. The size of the company has shown to be highly significant on both Column 2 and 3. The larger the firm, the lower the discount, and it tends to trade towards a premium.

During the time periods of our sample interest rates have been extremely low. Borrowing money has essentially been free. This low-interest period could be a reason why some of our results contradicts previous research, whose sample is from a different time when rates were higher. During these times taking on large amounts of costful loans, that is higher debt/equity, would perhaps not have been perceived as positively from the markets point of view. From our results there can be no drawn conclusion about the effect of leverage on discount to NAV. This result opposes most of the previous findings which found leverage to be positively related to discounts. Barkham and Ward (1999) neither found it to be significant.

Brounen and Ter Laak (2005) did argue the positive effect leverage has on discount, but this through the effect on risk. Although they did not find risk to be significant itself, they, as Bond and Shilling (2004), mention that higher leverage increases risk and this in turn gives a fall in the stock price, hence also a higher discount. Due to these discussions we generated an interaction variable between leverage and risk, which showed to be significant, but gave a negative slope which was not as expected. Though, with this variable included, RISK became significant with an expected positive effect on discount.

6.2 Limitations

Regarding limitations for our study, we believe that it would be valuable to be able to discuss the effect of investor and market sentiment. Previous studies have examined how this affects the stock price's deviation of NAV. This is an interesting aspect to include when studying this area, but it goes beyond our paper due to available time and space. Furthermore, it would have been interesting to expand the timeline and adjust for macroeconomic factors during these periods as we have seen drastic changes in interest rates, inflation and more, which most certainly have affected deviations between stock prices and net asset values. Though, for this industry with focus on the Swedish market, there might not be enough companies that have been around for that long.

7. Conclusion

In conclusion, our findings demonstrate a negative relationship between institutional ownership and the discount to net asset value (NAV), confirming our initial expectations. Institutional investors, such as pension funds and investment banks, play a crucial role within a company and have larger stakes, which incentivizes them to monitor management and align company interests with their own. Their involvement tends to lead to higher share prices and consequently lower discounts, supporting the theoretical framework introduced in this study.

This conclusion is consistent with the literature review, as other studies have also found a negative relationship between institutional ownership and discounts. The arguments presented, including the pursuit of outperforming investments by institutional investors and their ability to mitigate poor management decisions, align with the theory of performance incentives and shareholder value maximization.

Furthermore, our results highlight the significance of firm size in relation to discounts, as larger companies tend to experience lower discounts and trade at premiums. The inclusion of control variables in the analysis, particularly the interaction variable between institutional ownership and size, helped establish the correlation between institutional ownership, firm size, and discounts.

However, our findings deviate from previous research regarding the effect of leverage on discounts. While previous studies indicated a positive relationship between leverage and discounts, our results did not support this hypothesis. The low-interest rate environment during the sample period may have influenced these contradictory results, as borrowing costs were minimal, potentially diminishing the perceived negative impact of higher leverage.

Additionally, the interaction variable between leverage and risk produced unexpected results, with a negative slope instead of the anticipated positive relationship. Nevertheless, the inclusion of this interaction variable highlighted the significance of risk in influencing discounts, with higher risk contributing to higher discounts.

In conclusion, our study provides valuable insights into the factors affecting the discount to NAV, emphasizing the role of institutional ownership, firm size, and risk. These findings contribute to the existing body of knowledge in the field and offer implications for investors

and practitioners seeking to understand the determinants of discounts in the current economic landscape.

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