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PROFITABILITY ANALYSIS AND COMPARISON OF REAL ESTATE INVESTMENT IN HELSINKI METROPOLITAN AREA

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ABSTRACT

In this thesis, the Author investigates the profitability of real estate investment in Helsinki, Finland. The Helsinki metropolitan area is divided into four regions by their postal codes: Helsinki 1, Helsinki 2, Helsinki 3 and Helsinki 4. Helsinki 1 is located right in the heart of the city, Helsinki 2 around it, Helsinki 3 approximately around Helsinki 2 and Helsinki 4 represents the rest of the areas. The study focuses on one-room flats in a given period from 2010 to 2018. This thesis presents an overview of real estate investing, reasons to invest in real estate, possible risks, and characteristics of the real estate market in Finland. The study aims to calculate the average profitability for each region and analyze the results. Formulas such as rental income, capital appreciation, and total return are used to determine profitability.

Helsinki 2 turned out to be the most profitable region to invest in a dwelling. It had the highest figures in all of the categories. Therefore, for an investor seeking a steady cash flow, Helsinki 2 would be the choice to invest. Helsinki 1 had the lowest yearly average rental income, but a high capital appreciation. Helsinki 3 had the most balanced ratio between yearly average rental income and yearly average capital appreciation. All of the regions turned out to be profitable. However, the rental income did not meet the standard for a decent rental income rate. Every dwelling has unique and genuine factors that determine its value.

Keywords: profitability analysis, comparison, real estate investment, Helsinki, one-room flat

INTRODUCTION

The purpose of this thesis is to present an overview of real estate investing and a profitability analysis of real estate investment in the Helsinki metropolitan area. It seeks to find out, is it profitable and which region is most profitable to invest in. The study will concentrate on one-room flats. In addition to finding the profitability for each region, the Author presents an overview of real estate investing in general.

The author answers to three research questions in the thesis:

1) What is real estate investing?
2) How to calculate the profitability of real estate investment?
3) What is the most profitable region to invest in the Helsinki metropolitan area?

Real estate investing, reasons to invest, risks and market situation is discussed in the theoretical part of the thesis. The background information supports the methodological part and gives a common understanding of how the results are formed.

The study aims to calculate the average profitability of four regions in the Helsinki metropolitan area and compare the regions. Formulas such as rental income, capital appreciation, and total return are used to determine the profitability for each region.

The methodological part focuses on rental data, price data and maintenance data. Data needed for the calculations was gathered from Statistics Finland, the national statistical institution in Finland and is presented in the methodological part. Some sample figures, such as the size of a sample dwelling and the amount of leverage, were decided using the Author's judgment and evidence to support the decision.

The first chapter of the thesis focuses broadly on real estate investing and presents the characteristics of the real estate market in Helsinki. It provides the collective knowledge of it and

presents the reasons for investing in real estate. It also clarifies what does it mean to own a dwelling in Finland.

Almost every investing form has its risks, so does real estate investing. Therefore, the Author feels that it is essential to go through the factors that may affect the investment. The current market focuses on the reasons: why prices are steadily increasing. It shortly revises the effect of employment to the real estate market. Urbanization and the development of new dwellings are observed more closely. It seeks to give answers to the question presented earlier.

The second chapter of the thesis observes the profitability of real estate investment. It provides formulas that are mandatory when investigating the profitability. Rental income, capital appreciation, and total return are discussed.

The methodological part of the thesis seeks to find out and compare the average profitabilities in the Helsinki metropolitan area. Average rent per square meter, the average price per square meter, average maintenance charge per square meter and transfer tax are used in the profitability calculations. The quantitative data is analyzed, and pre-assumptions are made. Statistics Finland had divided Helsinki into four regions, which was convenient to the Author. However, it was rather hard to understand the physical locations of the areas, since they were divided by their postal codes. The Author marked them on the Helsinki metropolitan area map to give the reader a better understanding of the regions.

The fourth chapter, where the profitability culminates, results are presented. This chapter discusses the results of the calculations executed by the Author. The results are presented in detail, analyzed and compared with each other. The Author chose to present exact percentages since the differences in some calculations were minimal. It compares the regions and the author offer pre-thoughts on the results.

Lastly, the Author would like to thank a few people, who have supported the Author during his bachelor studies. Firstly, the Author would like to thank his supervisor Yassine Bakkar who was very supportive and understood the Author’s busy timetable during the final semester. Thanks also go to the family for the support he has needed in tough times.

1. REAL ESTATE INVESTING

According to Hugin & Munin, real estates is the largest asset class in the world. For a private investor, a dwelling represents the largest and only investment they carry out in their entire life. Compared to investing in stocks and bonds, real estate investing is seen much harder and time-taking (2012, 3). But what is real estate?

Property is not just a real estate. It is made up of two different elements: building or buildings, whose real value decreases with age and wear, and a plot value usually tends to rise over time. Real estate are things that cannot be moved such as lands and improvements that permanently attached to a land (Brueggeman, Fisher 2011, 3). The rise of building costs may elevate the nominal price of the building in the short term, but in time the real value of the building will fall. This is because it needs care and maintenance over time or has to be completely renovated. In the long run, the value of the property is based on the plot's appreciation. This is a factor that the investor should keep in mind. The main requirements for a plot to increase in value are location, location, and location. It is the most critical factor that affects the future value. The investment dwelling should be located where the consumers are. Coarsely said, a luxurious mansion located in the middle of nowhere loses its value if there is not anyone to live in it (Hugin & Munin 2012, 4).

In Finland, owning a property means owning the building or buildings and the land on it. OpusLex Ltd, a well-known Finnish law firm, states that a property is defined by law as "an independent land property unit that has to be registered into the real estate register. The property includes its area, shares in common areas and common benefits, as well as property rights and private special benefits." In a multi-story building, all of the dwellings form an apartment house company or in other words "housing company". The owner of a dwelling owns shares of the housing company and with this is titled to the apartment. A housing company is a limited liability company whose articles of association provide to manage a building or part of it, which at least half of the surface can be calculated as apartments. It is the most common form of housing management in Finland, mainly for its benefits. All of the common areas like a stairwell,

laundry room, and the courtyard are maintained in good condition by the housing company (Huoneistokeskus). This form of dwelling ownership is examined in this thesis.

In numerous cases, many have ended up as a landlord after inheriting a real estate property or after moving out from their first owned dwelling. They have become landlords as if by mistake. Being a landlord has suddenly grown their interest in real estate investing and soon their investment portfolio has grown with new real estate investment properties (Vuokranantajat 2014).

Many new investors consider should they invest in a new-built dwelling or an old one. New and old dwellings differ from each other significantly. An investor buying an old dwelling has to keep an eye on the housing company's renovation/refurbishment situation, while investors that choose new-built dwelling do not have to worry about them for a long time. Maintenance fees are lower in newer apartments. New-built dwellings are suitable for investors who favor easiness. The rentability of new dwellings is generally better, and some tenants are only seeking for new dwelling buildings. Usually, the rental profit is a little bit better in new-built dwellings than in an old dwelling with similar size and condition. However, the riverside of newly built apartments is the higher price. New dwellings have such a high demand at the moment that there is hardly any space for bargaining (Sijoitusasunnot; Campbell 2009, 7).

There are many real estate investment strategies that an investor may use. An investor may choose what type of dwelling he/she wants to invest in, how long does the investor plan to keep it, and what sort of strategy will be executed. When properly implemented, renting dwellings is a very profitable investment, and the risks tend to be quite moderate (Hänninen 2016).

1.1.Reasons to invest in real estate

If real estate investing would be easy and effortless, everyone would do it. It is not as easy as people tend to believe. Many do not have the time, interest, skills, experience and financial stability that real estate investing requires.

For an investor, who is seeking a little bit of gamble, stocks and bonds may offer a quick gain but also gruesome disappointments. Real estate investing's advantage is that it is effortless to get

a bank loan. The uncertainty in the stock market has a negative impact on the banks' decision to give loans to investors, who will invest the loan into stocks and bonds. Usually, the bank gives the property a 70-80% mortgage lending value (MLV). The mortgage lending value varies on the bank and depends on the property been purchased. In some cases, it is possible to get the leverage up to 100%, but in these cases, additional collateral such as another property must be used. Some banks also offer the possibility to purchase more leverage which increases the loan. For example, an investor purchases an apartment for 200 000 €. The bank gives the investor a 140 000 € loan (70% * price of the dwelling). 60 000 € of own money is needed. Now the investor has invested 60 000 € in the dwelling but has purchased a 200 000€ property (Orava, Turunen, 2016, 49).

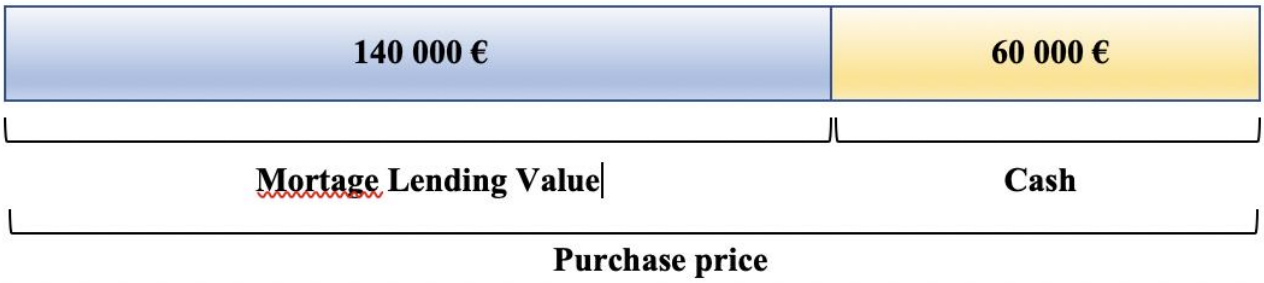

Figure 2. Demonstration of leverage.
Source: Orava, Turunen (2016, 50)

When rented out, the dwelling offers a steady cash flow that increases year after year. Only a few other investment forms offer this kind of possibility where the cash flow is natural to predict. While receiving monthly rental income, the value of the dwelling usually increases. From a historical point of view, dwellings have been a substantial investment. The fluctuation of market value has been more moderate than in the stock market. Banks see dwellings as secure investments, and this is the main reason why it is pretty easy to get a mortgage. Real estate investment offers a decent rental income rate at 4-6%. The investor may increase the profit and control the risks by using the mortgage wisely (Väänänen 2017; Orava, Turunen 2016, 15)

Since it is quite effortless to get a bank loan for a real estate investment, an investor can purchase several properties with relatively small equity. An investor owning only one dwelling is vulnerable to the cash flow risk. Having the house empty without a tenant could be costly. For example, this scenario could be caused by a housing company's renovation. Having several dwellings increases the cash flow and having a single dwelling without a tenant would not be so

harmful. It is all about risk management (Savolainen, Savolainen 2012, 15; Orava, Turunen 2016, 304).

Just like in any other market, pricing mistakes occur in the real estate market. For many citizens, a dwelling is instead a home than a financial investment. When selling a first owned dwelling, home, emotions could affect decisions, and some of them cannot be rationally explained. Emotionally driven decisions when purchasing a dwelling or hurrying in a housing transaction could lead to pricing mistakes. Emotions should be set aside, and the concentration should be directed into numbers. Pricing a dwelling is puzzling since every home is unique in their way. The stock market has a different feature in pricing: the exact price of a share is known at every trading moment (Savolainen, Savolainen 2012, 3-10).

The owner of the dwelling has many ways to influence the return of the investment. Choosing the city (location) is the first step that has to be taken. The second step is to choose the appropriate dwelling and housing company and consider if a renovation is necessary. Thirdly, choosing a suitable tenant for the property is crucial. This will be discussed in more detail in section "Risks." Like earlier mentioned, the form of financing has a significant role in generating profit. Mixing loans and own equity in investing is tricky but succeeding in this will grant a better profit (Savolainen, Savolainen 2012, 15).

Real estate investing can even be considered as an ethical hobby. Investors get hooked and start to seek for new possible dwellings. The idea of an even more significant steady cash flow attracts many. Real estate investing also has an ethical side; people will always need a home; some will not ever be able to purchase one, and for some, it is a conscious decision to live in a rental-dwelling (Bagdasarov 2018).

1.2.Risks

Real estate Real estate investing is considered quite moderate compared to other forms of investing. Just like in any other investment, a real estate investment also involves risks. However, risks are not the same for every investor. They depend on the experience and expertise of the investor, amount of debt, location of the real estate and size and condition. These factors above are controllable. There are also external risks, which cannot be minimized entirely.

Acknowledging the risks and reacting to them efficiently is an essential part of real estate investing (Orava, Turunen 2016, 296).

The most considerable risks that should be taken into account: price risk, interest rate risk, months without a tenant, risk of a poor tenant, rental level risk, management charge elevates, refurbishment risk, political risks and natural hazard risks (Orava, Turunen 2016, 296).

Price risk. The strategy has a significant role in this risk. If the investor's strategy is to buy, renovate and sell the property in a short period, price variances could be harmful. A delay in the property transaction and even the slightest decrease in the average price level might lower the profit.

In the long run, the decrease in the price level will not harm the investor. Whatever the price of the apartment is at a given time, the investment is bringing monthly rental income to the owner. An un-levered real estate investment would be most beneficial in this case (Orava, Turunen 2016, 298; V).

Interest rate risk. Many first-time investors forget to take the interest rate risk into account. When the interest level suddenly elevates, many investors are not adequately prepared for it. Especially the ones with much leverage. During a low-interest rate period it is tempting to go with a more significant loan sum. A low-interest rate might confuse the investor of the real interest level. The investor should be aware of the interest rate risk if having more than 50% of the debt. However, there are ways to protect yourself (Orava, Turunen 2016, 301).

In Finland, banks offer a few means to avoid the risk: fixed rate, interest rate cap, moderate leverage and a reserve fund (Orava, Turunen 2016, 303):

- A reliable solution is to go with a fixed rate. Banks offer these loans from 3 to 20 years. In this case, your aggregate rate is (reference rate + marginal) fixed for a beforehand period. The longer the period is, the higher the rate is.
- To ensure your reference rate will not change, the investor can pay the bank a single payment. The single payment ensures that the rate will not go over a certain percentage, interest rate cap. Before signing an agreement, it would be wise to make sure how much may the interest rate rise that the interest rate cap is profitable.

- Like earlier mentioned, having a loan over 50% of the property's market value brings certain risks along. Having moderate leverage (under 50%), the effect of an elevating interest rate is not remarkable.
- "Do not put all your eggs in one basket." It is not wise to have all of your funds invested in a property or properties. Having a reserve fund approximately 30% of the amount of the investment lowers the risk significantly. Having a reserve fund could save you when the chips are down. On the other hand, it is possible to get profit from the reserve fund when investing it wisely into funds and stocks.

Months without a tenant. There is always a risk of not being able to find a tenant for the estate. Having the estate empty does not exclude the fact that the investor still has to pay the management charge. The groundwork for preventing the risk of months without a tenant is done long before seeking for one. The preparations for avoiding this risk is done before the investment decision (Orava, Turunen 2016, 304).

Size and location are the keywords. Approximately 60% of all of the households are one-room flats. Therefore, it would be wise to invest in them, according to statistics. The investment should be located near or in a growth center, for example in cities which have several educational establishments. Educational establishments (universities) have thousands of students, and the turnover rate of them is fast. A one-room flat is most suitable for students, and the demand for them is high (Orava, Turunen 2016, 304; Campbell 2009, 15).

Pricing the rent and the condition of the dwelling are also important. The rent should be set approximately at market price or slightly lower. Having the rent higher than the market price could drive away possible tenants. A suitable price level can be figured out with a local real estate agent. There is also the option of figuring it out by yourself: going through and comparing other available apartments from marketplaces. (Orava, Turunen 2016, 305)

A dwelling that is in excellent condition is easier to rent. It is advisable to prefer neutral, friendly style, decorations, and colors. Original decisions will only repulse tenants. Having it in good condition and well-equipped attracts good tenants. The length of the rental lease may also be affected by these factors (Orava, Turunen 2016, 305)

Risk of a poor tenant. Every property owner's nightmare. No matter how good the real estate investment might be, a poor tenant could drag the future value down by their actions. Choosing the right, a reliable tenant is crucial. In Finland, tenants are usually liable and rental payments are paid on the date. However, the risk is always present (Orava, Turunen 2016, 306).

In worst case scenarios, the tenant is an apartment wrecker. This rarely happens, but it is possible. Of course, accidents happen now and then which will have an influence on the future value of the dwelling or be costly for the owner. There are ways to minimize this risk of occurring. You should start by checking the applicant's credit report. If the applicant has had credit problems in the past, the issue could recur, and payments could come late. Talking with them face to face is always a smart decision, and it could unfold new details of the applicant. Ensuring that the tenant has enough liquidity, collateral should be taken. The amount of the collateral is usually 1-2 months of rent (Orava, Turunen 2016, 308).

Rental level risk. There is always the risk that the current market level of rental prices could suddenly plummet. The owner of the dwelling does not have much to say if this happens. This is an external factor that the owner cannot influence. The only mistake the owner can do is set too high rent. It is easier to estimate the rent higher than the lower the market price. The owner of the dwelling should contact a local real estate agent who has the experience or compare the dwelling to other available apartments from marketplaces. Pricing the rent by yourself is, of course, cheaper since it only takes time. The local real estate agent's fee is usually the amount of one month's rent (Orava, Turunen 2016, 309).

Maintenance and refurbishment risk. Renovating a dwelling straight after purchasing it is usually a conscious decision. The idea behind it is to get better profit out of it either by renting it or by "flipping" it. Regardless of the apartment renovation/maintenance, the condominium could have refurbishments and maintenances. The costliest renovations are façade, windows, balcony and pipe repairs. In worst case scenarios, the dwelling has to be unoccupied for months during the refurbishments. This is not profitable for the owner since the rental profit from the months will be lost (Orava, Turunen 2016, 310).

Before purchasing the dwelling, the investor should carefully go through the condominium maintenance report, and check is there any costly renovations ahead. Usually, the report contains specific details of the future renovations and the price tag on them. The investor should

remember that the costs are only estimations of costs and might change. To play it safe, investing in a new-built dwelling is rational. A new-built dwelling will not have any significant renovations in the near future (Orava, Turunen 2016, 311).

Political and natural hazard risks. These risks are hard to predict and prevent if they appear. It is almost impossible to foresee future political decisions that could affect the investment. Political decisions that could affect the investment are: increase in taxation, the decrease of student allowance, shutting down an educational establishment located near the investment, geopolitical situation, etc. (Orava, Turunen 2016, 311-312).

In Finland, natural hazards rarely compromise a good dwelling investment. The biggest threats are storms and floods. These threats might affect the investor only if investing in cottages and row houses. Anyhow, the risk is still minimal. If the location were somewhere in the southeast of the United States of America, the risk percentage would be a lot higher. In this case, the investor should be aware of the possibility of natural hazards (Orava, Turunen 2016, 311-312).

1.3. Characteristics of the real estate market in Finland

For the past few years, Finland's economy has been steadily rising. The employment rate has increased to 72%, and the unemployment rate has significantly declined. This phenomenon can be noticed in the real estate market. The increase in employment rate is directly proportional to the increase of supply of apartments. On the other hand, this has slowed down the growth of rental profits (Vuori *et al*. 2019).

The prices of old multi-story residential buildings grew 1,2% in 2018. In a favorable economic situation, the housing market's development in 2019 will grow steadily, and prices will maintain at 1,2%. Low-interest rates and the growth of employment rate support the development of the real estate market. In the Helsinki metropolitan area, there is still a high demand for new-built dwellings, but in individual districts where there has built a lot of new dwellings in the past few years, the demand has decelerated (Vuori *et al*., 2019)

Last year, prices proliferated in the Helsinki metropolitan area and Tampere. Population growth is also located in these areas, which can be noticed in a stronger price rise of dwellings. The

ongoing activity of investors keeps the real estate market vivacious and the demand stable. In Helsinki, citizens prefer new-built dwellings near the coast. Although there is a high demand for new-built dwellings, which buffers their prices higher, the prices of old multi-story apartments are rising in the wake of new properties. The development of new residential areas improves the rest of the residential area considerably. Generally, the area develops positively, and the number of service providers grows (Suomen Vuokranantajat 2018, 5).

Housing production is focused mainly in the Helsinki metropolitan area and other large cities. The development will only rise in the years to come. In 2017 housing production was at its highest and approximately 47,000 new housings were built. The primary reason for this is urbanization which leads to growing demand. Urbanization is accelerating so fast at the moment that a moderate housing production scenario is not adequate. The housing production should be at 35,000-40,000 every year to meet the demand. Citizens are not only moving into the large metropolitans from smaller cities. Citizens living in the fringe of the metropolitan are now trying to move even closer to the city center. One key factor is the aging of the population. The senior citizens require services to be close to them. Therefore, they prefer living in multi-story buildings in the city center, where the services are nearby. (Suomen Vuokranantajat 2018, 3)

The number of building permits granted in 2018 has declined compared to earlier years. However, there is a vast number of valid permits at the moment that the construction of new apartments will not stop in 2019. The decrease in building permits will affect the national economy. Growing metropolitans will need more and more labor force and apartments because urbanization does not seem to lessen. In the worst-case scenario, the decline in building permits granted will hinder the growth of the national economy. (Suomen Vuokranantajat 2018, 5)

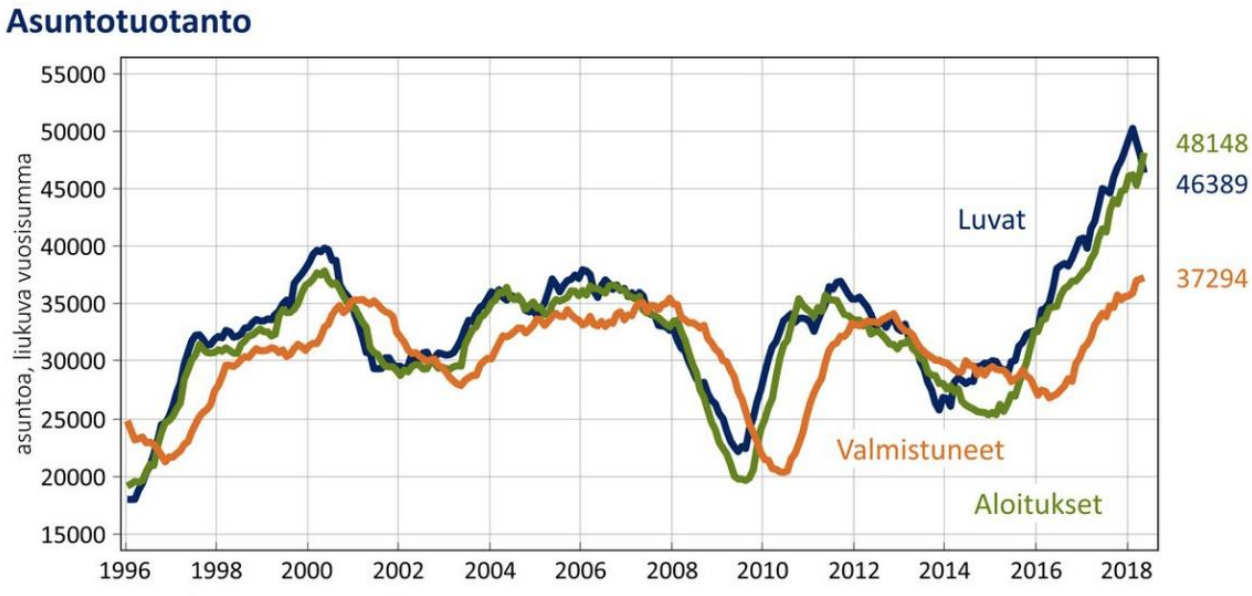

Figure 1. Amount of building permits granted.

Source: Suomen vuokrantajien vuokramarkkinakatsaus (2018)

Clarification of the figure
Asuntotuotanto = Housing production
Permits
Completed
Started

As the urbanization and immigration increases, so makes the demand for rental-dwellings. Living preferences have changed a lot since 2010. Living in a rental-dwelling is the most popular type of accommodation at the moment, although the current taxation system guides towards owner-occupied housing. Not a long time ago, living in a rental-dwelling was seen as a "working-class citizen's" type of accommodation. Nowadays, a long (20-30 years) housing loan could feel too lengthy in the rapidly changing working life. An expensive owned dwelling is not kept as a status symbol these days (Suomen Vuokranantajat 2018, 8).

The location has become remarkably significant in today's housing preferences. Owning a dwelling in a particular district might be impossible, but rental housing could be possible. People have tighter criterions which have led to a high demand in downtown, and therefore rents tend to rise. Citizens want to invest in location and living (Suomen Vuokranantajat 2018, 7).

2. PROFITABILITY OF A REAL ESTATE INVESTMENT

Like earlier mentioned "When rented out, the dwelling offers a steady cash flow that increases year after year. Only a few other investment forms offer this kind of possibility where the cash flow is easy to predict. While receiving monthly rental income, the value of the dwelling usually increases." Pekka Väänänen states that calculating the rental income should be the first thing that an investor should do when comparing different investment options (2017).

2.1. Rental income

There is a common opinion among housing investors that the level for a moderate rental income is approximately 6%. Typically, rental incomes fluctuate around 4-8%. Price of the dwelling, current rental level, and costs influence the return. Factors affecting the level of rent are the condition of the housing company, age, city, and most importantly location. The rental income of a new-built dwelling in the center of a metropolitan is entirely different from the income from a dwelling located in the suburb (Väänänen 2017).

A rental income can be calculated in several ways using different formulas. According to Orava and Turunen, the yearly rental income of a dwelling can be calculated with the following formula (2016, 86):

$$\frac{(Rent - Maintenance\ fee) \times 12}{Free\text{-}from\text{-}debt + Refurbishment\ expense + Transfer\ tax} \times 100\%$$

Figure 3. Rental income formula.
Source: Orava, Turunen (2016, 86)

In this thesis, the refurbishment expense shall be excluded from calculations. The purchase price of new-built dwellings is higher than in old dwellings. A new-built dwelling won't need any

refurbishment or housing company renovations for a long period of time and therefore they won't lower the rental income.

$$\frac{(Rent-Maintenance\ fee)\times 12}{Free-from-debt+Transfer\ tax} \times 100\%$$

Figure 4. Rental income simplified formula.
Source: Orava, Turunen (2016, 81)

The more straightforward formula does not take the following factors into account: housing company's refurbishments, dwelling refurbishments, possible capital appreciation and months without a tenant. The tax administration also takes a small slice away from the profit. The transfer tax is 2% in multi-story dwellings. However, there are some exceptions when the owner of the dwelling does not have to pay it. For example, when purchasing a dwelling for the first time, the transfer tax usually can be excluded (VERO 2017).

For a leveraged investment the following formula is used:

$$\frac{\left(Rent - Maintenance\ fee - \left(\frac{Leverage\times Transfer\ tax}{12}\right)\right) \times 12}{Free - from - debt + Transfer\ tax}$$

Figure 5. Leveraged rental income formula.
Source: Orava, Turunen (2016, 81)

2.2. Capital appreciation

In addition to rental income, capital appreciation has to be taken into account, since it is often the most critical element in long-term returns. In the worst case, it is possible that the value of the dwelling may also fall. Regional differences have a considerable effect on the return. A regions development in services, city planning, and development of public transportations has a positive impact (Vuori *et al*. 2019).

Capital appreciation may occur when the current price level rises or when purchasing a dwelling priced under the current level. If it is possible to purchase a dwelling under the current price level, the rental income of the investment does not necessarily need to be high (Peab Oy).

The formula for capital appreciation:

$$\frac{Sales\ price - Acquisiton\ price}{Acquisition\ price}$$

Figure 6. Capital appreciation formula.
Source: Brueggeman, Fisher (2011, 193)

For a leveraged real estate investment, the acquisition price is multiplied by $(1 - {}^{L}/_{V})$. Whereas (L/V) stands for loan-to-value ratio. The formula for calculating capital appreciation, when using leverage, can be calculated with the following formula:

$$\frac{Sales\ price - Acquisition\ price}{Acquisition\ price\ \times (1 - {}^{L}/_{V})}$$

Figure 7. Leveraged capital appreciation formula.
Source: Brueggeman, Fisher (2011, 193)

2.3. Total return

The total return of a real estate investment is rather straightforward. Simply summing up rental income and capital appreciation:

$$Rental\ income\ \pm Capital\ gain = Total\ return$$

Figure 8. Total return formula
Source: (Alho *et al* 2018, 9)

3. METHODOLOGY

The methodological part of this thesis seeks to find out and compare the average profitabilities in the Helsinki metropolitan area. Average rent per square meter, the average price per square meter, average maintenance charge per square meter, loan interest rates and transfer tax are used in the profitability calculations. Formulas that will be used are as follow, rental income, capital appreciation, and total return.

As previously mentioned in Chapter 1.2., approximately 60% of all of the households are one-room flats. Therefore, it is evident that the calculations and comparison are done using data from one-room flats. The average surface area of a flat was 34 square meters from 2014 to 2017; for this reason, the sample surface area in the calculations is 34 square meters (Statistics Finland 2018).

Refurbishment expenses and taxes are excluded from the calculations. Taking them out of the account will not affect profitability and comparison drastically. For example, not all of the need dwellings and housing companies have not done any renovations in the period 2010-2018.

As stated earlier, the bank usually gives the property a 70-80% mortgage lending value (MLV). Therefore, the author decided that it is reasonable to use a 75% leverage in the calculations.

The historical data of Helsinki shall be collected from Statistics Finland database from years 2010-2018. In this thesis, the areas shall be called “regions.” By Statistics Finland, Helsinki is divided into four regions by their postal codes: Helsinki 1, Helsinki 2, Helsinki 3 and Helsinki 4 (Statistics Finland 2019). There was not a map existing where all of these regions would be specifically marked. Therefore, going through and studying the postal codes and marking them on the map gave a rough sketch where the postal codes are located. Helsinki 1 is located right in the city center, Helsinki 2 on the borders of the center, Helsinki 3 located roughly around Helsinki 2 and Helsinki 4 stands for the rest of the postal codes. Helsinki 4 is not marked on the map, unlike the rest regions are. The following figure shows the approximate borders of each region.

Figure 10. Presentation of regions on map.
Source: Author's illustration based on the gathered data from Statistics Finland; Svala, Joutsi (2017).

Helsinki 1: 100, 120, 130, 140, 150, 160, 170, 180, 220, 260 (Etu-Töölö, Punavuori, Kaartinkaupunki, Kaivopuisto, Eira, Katajanokka, Kruununhaka, Kamppi, Jätkäsaari, Keski-Töölö)

Helsinki 2: 200, 210, 250, 270, 280, 290, 300, 310, 320, 330, 340, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 610, 810, 850, 990 (Lauttasaari, Vattuniemi, Taka-Töölö, Laakso, Ruskeasuo, Pikku-Huopalahti, Kivihaka, Etelä-Haaga, Munkkiniemi, Lehtisaari-Kaskisaari-Kuusisaari, Sörnäinen, Alppila, Itä-Pasila, Hakaniemi, Hanasaari, Toukola, Kumpula, Kulosaari, Hermanni, Laajasalo, Käpylä, Jollas, Aurinkolahti)

Helsinki 3: 240, 350, 360, 370, 400, 430, 440, 620, 650, 660, 670, 680, 690, 730, 780, 790, 800, 830, 840, 950 (Länsi-Pasila, Munkkivuori, Pajamäki, Reimaria, Pohjois-Haaga, Hakuninmaa, Lassila, Metsälä, Veräjämäki, Länsi-Pakilam

Helsinki 4: Other postal codes

All of the data for the calculations were collected from Statistics Finland archive. The chosen sample period is from 2010 to 2018. The sample period is rather short; there is not any possible data to be gathered earlier than 2010, in the database. On the other hand, starting the period from 2010 excludes the data from 2008 when there was a recession in Finland.

The author expects Helsinki 1 to have the highest rent per square meter. The same expectation goes for price per square meter. It would be logical to believe that Helsinki 3 and 4 will have the lowest rent per square meter and price per square meter. The main reason for this is that they are located near the borderlines of the metropolitan, where the prices tend to be lower than in the city center, and the demand for dwellings is lower.

3.1. Rental data

As earlier stated, the data was collected from Statistics Finland archive. Figure 11 shows the average yearly rent per square meter for each region. One-room flat is used as the sample dwelling size. The Figure 11 shows average rent per square meter in Helsinki metropolitan area and how the rents have developed from 2010 to 2018.

As expected, the average rent per square meter from highest to lowest is as follows: Helsinki 1, Helsinki 2, Helsinki 3 and Helsinki 4.

X-axis = time period from 2010 to 2018
Y-axis = rent per square meter

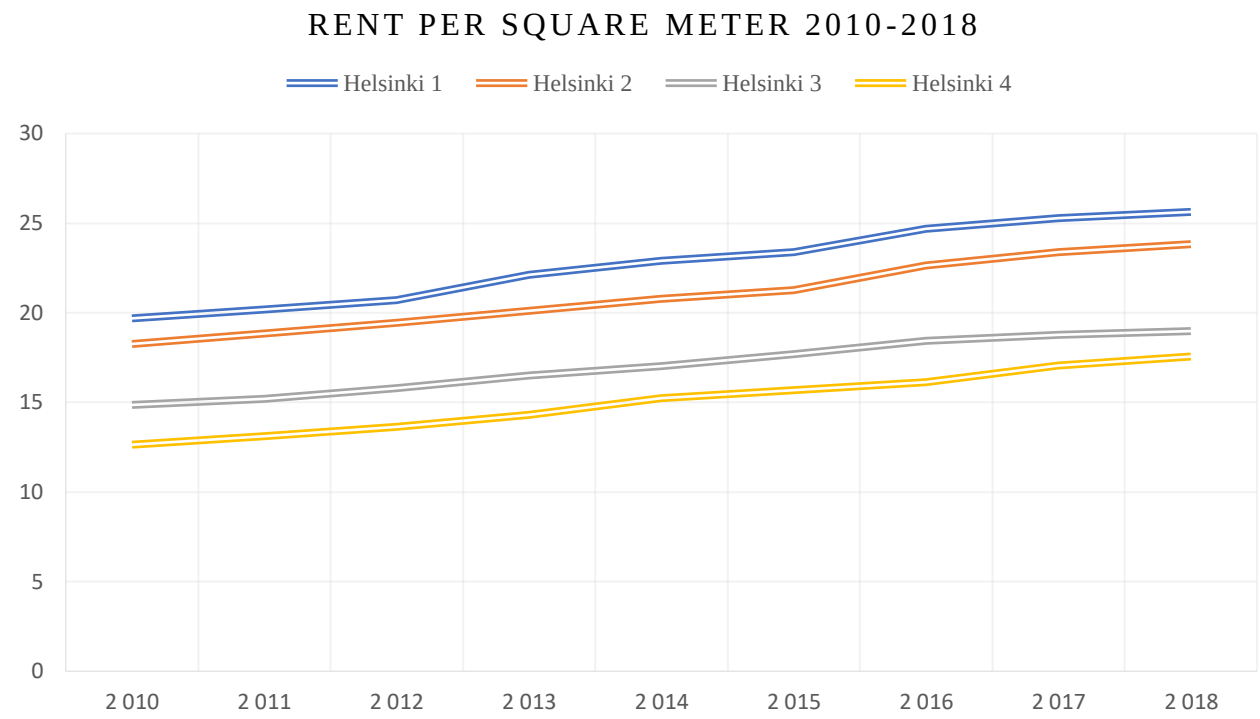

Figure 11. Rent per square meter 2010-2018
Source: Author's work based on Table 1.

Table 1. Average yearly rents per square meter, 2010-2018, euros (€).

Region	**2 010**	**2 011**	**2 012**	**2 013**	**2 014**	**2 015**	**2 016**	**2 017**	**2 018**
Helsinki 1	19,69	20,17	20,71	22,11	22,9	23,39	24,7	25,27	25,63
Helsinki 2	18,26	18,83	19,43	20,1	20,78	21,27	22,64	23,37	23,83
Helsinki 3	14,86	15,19	15,79	16,49	17,04	17,7	18,45	18,77	18,98
Helsinki 4	12,64	13,1	13,64	14,31	15,22	15,7	16,14	17,06	17,56

Source: Statistics Finland (2019)

In the time period 2010 to 2018, Helsinki 1 had the highest rental level: 25,63€ in 2018. Helsinki 4 had the lowest in 2010, 12,64€ per square meter. Observing Table 1, it is noticeable that there is a clear pattern. Every year Helsinki 1 had the highest average rental level and Helsinki 4 the lowest. However, Helsinki 4 had the highest total increase in the time period. The total increase was 38,9% with a yearly growth rate of 4,32%. Yearly growths rates are listed below:

Helsinki 1 – 3,35%

Helsinki 2 – 3,38%

Helsinki 3 – 3,08%

Helsinki 4 – 4,32%

3.2. Price data

As in in the previous chapter, price data was also collected from Statistics Finland archive. Figure 12 presents the average yearly price per square meter for each region. Just like in the rental data, one-room flats was used as the sample dwelling size. The Figure 12 shows average price per square meter in Helsinki metropolitan area and how the prices have developed from 2010 to 2018.

Since the regions are like layers on each other, the author expects that Helsinki 1, located in the center, would have the highest prices.

X-axis = time period from 2010 to 2018
Y-axis = price per square meter

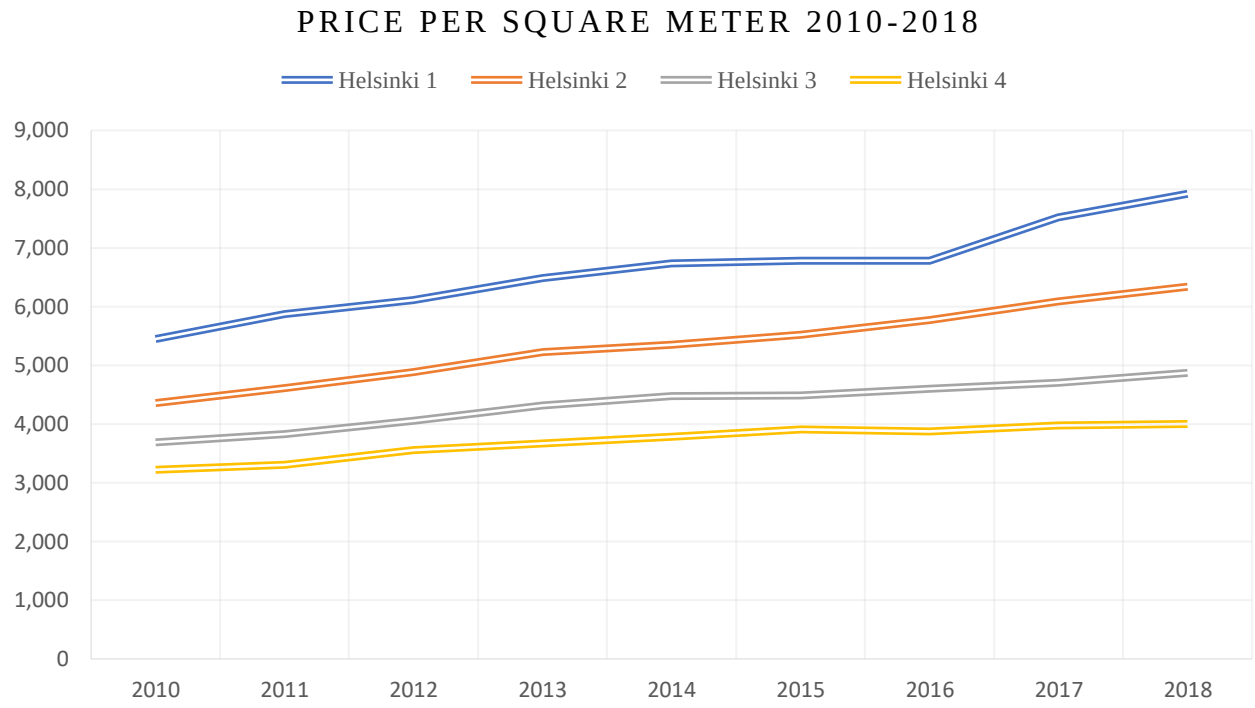

Figure 12. Price per square meter 2010-2018.
Source:Author's own work based on Table 2.

Table 2. Average yearly prices per square meter, 2010-2018, euros (€).

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018
Helsinki 1	5 448	5 873	6 106	6 490	6 736	6 780	6 783	7 514	7 920
Helsinki 2	4 357	4 615	4 880	5 230	5 355	5 517	5 769	6 090	6 338
Helsinki 3	3 688	3 826	4 053	4 311	4 481	4 488	4 605	4 701	4 871
Helsinki 4	3 221	3 308	3 552	3 668	3 785	3 912	3 869	3 977	4 001

Source: Statistics Finland (2019)

The same pattern that was in the in the rental data, is repeated in the price data. Helsinki 1 had the highest price per square meter (7920€) in the given time period. Once again, Helsinki 4 had the lowest price per square meter (3221€).

Yearly growth rates:

Helsinki 1 – 5,04%
Helsinki 2 – 5,05%
Helsinki 3 – 3,56%
Helsinki 4 – 2,69%

From 2010 to 2018 Helsinki 1 and Helsinki 2 had increased the most in price. The yearly increases in average prices per square meters were 5,04% and 5,05%. Helsinki 3 increased from 3688€ to 4871€ with a yearly increase rate of 3,56%. Helsinki 4 had the smallest yearly increase rate, 2,69%.

When comparing the average rent per square and average price per square, it seems that Helsinki 3 has the balanced ratio. The average price per square meter has increased 3,56% yearly and the average rent per square meter had the highest yearly increase 3,08%.

3.3. Maintenance data

Rental data and price data were gathered from the Helsinki metropolitan area, Statistics Finland archive. Maintenance data was likewise gathered from there, but specific maintenance data in Helsinki metropolitan area couldn't be found. Therefore, it was chosen to go with the national averages of maintenance fees per square meter.

Table 3. Average yearly maintenance fees per square meter, 2010-2018, euros (€).

Year	Per square meter	34m² (€)
2010	3,28	111,52
2011	3,43	116,62
2012	3,54	120,36
2013	3,75	127,5
2014	3,98	135,32
2015	4,05	137,7
2016	4,04	137,36
2017	3,96	134,64
2018	3,96	134,64

Source: Statistics Finland (2019)

There wasn't maintenance fee data for the year 2018. It was chosen that the maintenance fee would be the same as in year 2017.The decision won't affect the results and comparison of the regions.

As we can see from the Table 3, maintenance fees have increased since 2010. The fee has increased 20,7% with a yearly growth of 2,3%. Compared to the yearly increases of average rent per square meter and average price per square meter, the maintenance fee hasn't increased as much.

4. RESULTS AND DISCUSSION

4.1. Rental income results

The results of average rental incomes of each region are given in Table 4. The rental incomes were calculated using the rental income formula presented in Chapter 2.1. Yearly average rent, yearly average price of the dwelling, yearly average maintenance fee and transfer tax were needed to conduct the calculations.

Table 4. Average yearly rental incomes, 2010-2018, percentage (%).

Year	Helsinki 1	Helsinki 2	Helsinki 3	Helsinki 4
2010	3,5 %	4,0 %	3,7 %	3,4 %
2011	3,4 %	3,9 %	3,6 %	3,4 %
2012	3,3 %	3,8 %	3,6 %	3,3 %
2013	3,3 %	3,7 %	3,5 %	3,4 %
2014	3,3 %	3,7 %	3,4 %	3,5 %
2015	3,4 %	3,7 %	3,6 %	3,5 %
2016	3,6 %	3,8 %	3,7 %	3,7 %
2017	3,3 %	3,7 %	3,7 %	3,9 %
2018	3,2 %	3,7 %	3,6 %	4,0 %
TOTAL	30,33 %	34,07 %	32,37 %	32,14 %
Yearly income	3,37 %	3,79 %	3,60 %	3,57 %

Source: Author's calculations based on Tables 1, 2 and 3.

The results of the calculations turned out to be quite interesting. Helsinki 2 had the highest rental income percentage. In the sample time period, Helsinki 2's rental income grew 34,07% with a yearly increase of 3,79%. Helsinki 3 (3,6%) and Helsinki 4 (3,57%) average rental incomes increased "hand in hand" from 2010 to 2018. It was expected that the increase in rental income of the region located in the city center, Helsinki 1, would have a low percentage. However, having the lowest increase wasn't expected. The divergence in the yearly returns aren't staggering. They varied from 3,37% to 3,79%, so the difference wasn't huge.

The leveraged rental income was also calculated with the formula presented in Chapter 2.1. 75% was used as the sample leverage in the calculations. For example, a one-room flat costing 100 000€ would have a 75 000€ leverage and 25 000€ free-from-debt price. The average yearly leveraged rental incomes are demonstrated in the Table 5 below.

Table 5. Average yearly leveraged rental incomes, 2010-2018, percentage (%).

Year	Helsinki 1	Helsinki 2	Helsinki 3	Helsinki 4
2010	7,8 %	9,7 %	8,4 %	7,4 %
2011	7,1 %	9,3 %	8,1 %	7,4 %
2012	6,9 %	8,9 %	7,9 %	7,1 %
2013	7,0 %	8,3 %	7,6 %	7,2 %
2014	6,9 %	8,4 %	7,4 %	7,6 %
2015	7,1 %	8,3 %	8,0 %	7,7 %
2016	8,0 %	8,8 %	8,4 %	8,3 %
2017	7,0 %	8,6 %	8,4 %	9,1 %
2018	6,6 %	8,4 %	8,1 %	9,6 %
TOTAL	**64,59 %**	**78,72 %**	**72,27 %**	**71,42 %**
Yearly income	**7,18 %**	**8,75 %**	**8,03 %**	**7,94 %**

Source: Author's calculations based on Tables 1, 2 and 3.

As expected, the increases from highest to lowest were the same as in unleveraged: Helsinki 2 (1st), Helsinki 3 (2nd), Helsinki 4 (3rd) and Helsinki 1 (4th). Helsinki 2 was once again in the first place with a total average rental income percentage of 78,72% and with a yearly average increase of 8,75%. The percentages are higher than in the unleveraged incomes.

4.2. Capital appreciation results

The results of capital appreciations are given in Table 6. Acquisition price and sales price are essential components when calculating the capital appreciation. Table 6 demonstrates the acquisition prices in year 2010 and selling price in year 2018. The change in price is also shown.

Capital appreciation is calculated by subtracting the acquisition price from the sales price and then dividing it by the acquisition price.

Table 6. Average capital appreciations, 2010-2018, euros (€), percentage (%).

-	**Helsinki 1**	**Helsinki 2**	**Helsinki 3**	**Helsinki 4**
Aquisition	185 232	148 138	125 392	109 514
Sales	269 280	215 492	165 614	136 034
Change	45,37 %	45,47 %	32,08 %	24,22 %
Yearly appreciation	**5,04 %**	**5,05 %**	**3,56 %**	**2,69 %**

Source: Author's calculations based on Table 2.

It was expected that the highest appreciation would be in the city center, in Helsinki 1 region. However, Helsinki 2 had the highest yearly appreciation rate of 5,05%. In 2010 the average price of a one-room flat was 148 138€ which increased to 215 492€ by 2018. Helsinki 1 had almost the same appreciation as Helsinki 2. The difference was minimal, since Helsinki 1's yearly appreciation was 5,04%, only 0,01% far from Helsinki 2.

Helsinki 4's change from 2010 to 2018 was 24,22% with a yearly appreciation of 2,69% and Helsinki 3's yearly appreciation was 3,56%. In Helsinki 4, comparing the capital appreciation to rental income, an investor should focus on the rental income.

In leveraged capital appreciation, the same pattern follows as in un-leveraged capital appreciation. The order from highest to lowest maintained the same. A 75% leverage was used for the sample one-room flats. Once again, Helsinki 1 and 2 had the highest yearly appreciation.

Table 7. Average leveraged capital appreciations, 2010-2018, euros (€), percentage (%).

-	**Helsinki 1**	**Helsinki 2**	**Helsinki 3**	**Helsinki 4**
Aquisition	185 232	148 138	125 392	109 514
Sales	269 280	215 492	165 614	136 034
Change	181,50 %	181,87 %	128,31 %	96,86 %
Yearly appreciation	**20,17 %**	**20,21 %**	**14,26 %**	**10,76 %**

Source: Author's calculations based on Table 2.

4.3. Total return results

Table 8. Average total returns, 2010-2018, percentage (%).

-	**Helsinki 1**	**Helsinki 2**	**Helsinki 3**	**Helsinki 4**
Yearly rental income	3,37 %	3,79 %	3,60 %	3,57 %
Yearly capital appreciation	5,04 %	5,05 %	3,56 %	2,69 %
Total	**8,41 %**	**8,84 %**	**7,16 %**	**6,26 %**

Source: Author's calculations based on Tables 4 and 6.

Calculating the total return was rather straightforward. Simply summing up the yearly average rental income and yearly average capital appreciation gives the total return. Since Helsinki 2 had the highest yearly rental income (3,79%) and yearly average capital appreciation (5,05%), it's obvious that the total return would also have the highest return percentage.

Although, Helsinki 1 had the lowest yearly average rental income, it had the second highest total return. This is mainly due to the fact that it had a high yearly average in capital appreciation. Helsinki 4 had the lowest total return of 6,26%. Helsinki 3 came in third with a total return of 7,16%. It had the most alike percentages in yearly rental income and capital appreciation. The yearly average rental income was 3,6% and yearly average capital appreciation was 3,56%. The difference between them is only 0,04%. Comparing the percentage ratios of other regions, it's clear that Helsinki 3 had the most balanced ratio.

Table 9. Average leveraged total returns, 2010-2018, percentage (%).

Leveraged	**Helsinki 1**	**Helsinki 2**	**Helsinki 3**	**Helsinki 4**
Yearly rental income	7,18 %	8,75 %	8,03 %	7,94 %
Yearly capital appreciation	20,17 %	20,21 %	14,26 %	10,76 %
Total	**27,35 %**	**28,96 %**	**22,29 %**	**18,70 %**

Source: Author's calculations based on Tables 5 and 7.

4.4. Discussion

Table 10. Summary of results, 2010-2018, percentage (%).

(Yearly)	**Helsinki 1**	**Helsinki 2**	**Helsinki 3**	**Helsinki 4**
Rental income	**3,37 %**	**3,79 %**	**3,60 %**	**3,57 %**
Leveraged	7,18 %	8,75 %	8,03 %	7,94 %
Capital appreciastion	**5,04 %**	**5,05 %**	**3,56 %**	**2,69 %**
Leveraged	20,17 %	20,21 %	14,26 %	10,76 %
Total return	**8,41 %**	**8,84 %**	**7,16 %**	**6,26 %**
Leveraged	27,35 %	28,96 %	22,29 %	18,70 %

Source: Based on Tables 4-9.

The results provided in Table 10 gathers all of the earlier calculated yearly results in a single table. Yearly rental incomes, - capital appreciations and – total returns are shown and the leveraged results as well.

Observing rental income results, the differences between the regions aren't huge. The deviation is only 0,42%. Helsinki 2 had the highest yearly rental income and Helsinki 1 the lowest from 2010 to 2018. The same order from highest to lowest followed in yearly leveraged rental income. It was expected since the variables are same for each calculation. Capital appreciation results continued with a slightly different pattern. Helsinki 2 was once again at the first place having the highest percentage, but Helsinki 1 came in second (5,04%). The difference between Helsinki 1 and Helsinki 2 are minimal, only 0,01%. Total return results from highest to lowest: Helsinki 2, Helsinki 1, Helsinki 3 and Helsinki 4.

Since this thesis does use averages of each region, it has its flaws and doesn't give accurate results of profitability. It provides Excluding the refurbishment expense out from the calculations does also have an effect on the results. Conducting a research using accurate figures and including the refurbishment expenses could demonstrate different results. However, the author believes that the average refurbishment expense would be quite similar in each region and therefore wouldn't affect the results dramatically.

CONCLUSION

The purpose of the study was to provide an overview and profitability analysis of a real estate investment in Helsinki, Finland. The study was conducted from a private investors point of view. It provides reasons for an investor; why to invest in real estate and what could the possible risks be that could affect the investments profitability? The characteristics of the real estate market in Helsinki was also overviewed. The steadily growing prices in the real estate market makes the Helsinki metropolitan area an interesting target to examine. As urbanization and immigration increases, the demand for apartments doesn't see to stop. It's directly proportional to the rental prices which are elevated because of this. It would be interesting to know; how high can the prices grow? The steadily growing prices in the real estate market in the Helsinki metropolitan area were an interesting target to examine.

As the Author has stated in this thesis, real estates is the largest asset class in the world. For a private investor, a dwelling represents the largest and only investment they carry out in their entire life. When rented out, a real estate investment provides the investor a steady, extra cash flow. The interest in real estate investing has grown a lot in the past years, which can be noticed in the activity of investors.

The Author agrees with Orava and Turunen that if real estate investing would be easy and effortless, everyone would do it. It isn't as easy as people tend to believe. Many don't have the time, interest, skills, experience or financial stability, that real estate investing requires. Investing in real estate might be the only and largest investment for an ordinary Finnish citizen.

The aim of the study was to analyze and compare the profitability of real estate investment in Helsinki in four regions divided by their postal codes (Figure 10). The author decided that the sample size of an investment was chosen to be a one-room flat, since over 60% of all households are one-room flats. The needed data for the calculations were gathered from Statistics Finland archive to get impartial data.

Profitability was measured using three formulas: rental income, capital appreciation and total return. Average rent per square, average price per square and average maintenance fees are needed for the calculations. When calculating the leveraged rental income and leveraged capital appreciation, a 75% leverage was used. Transfer tax was also needed in the calculations.

Observing the results of profitability, certain patterns were noticeable. Helsinki 2 dominated in all of the profitability calculations. It had the highest yearly return in rental income (3,79%), yearly return in capital appreciation (5,05%) and total return (8,84%). The region's high total return percentage is due to its high yearly income and appreciation.

When viewing the total returns of a real estate investment in each region, Helsinki 1 came in second. Although it had the weakest yearly average income, the capital appreciation was almost at the same level with Helsinki 2. The difference was minimal, only 0,01%. Its capital appreciation is strongly affected by the high demand of dwellings in the city center. Helsinki 3 and 4 performed weakest; their total returns from 2010 to 2018 were 7,16% and 6,26%. Even though they had the lowest profitability in the given time period, it doesn't mean that investing in these regions would be a bad decision. The prices of dwellings tend to get lower when going out from the city center. For an investor with not a lot of capital, Helsinki 3 and Helsinki 4 would be rational options. Using leverage would make the free-from-debt cost even lower.

In conclusion, the differences in yearly average rental income were extremely small. The dispersion of the results was between 3,37% - 3,79%. The returns are moderate since a good rental income percentage would be between 4-6%. However, from the perspective of an investor, investing in Helsinki 2 would be the wisest choice to go with, if finance is not an issue. It provides a strong rental income percentage compared to other regions with a steady cash flow. In addition to the rental income, its capital appreciation was the most beneficial. If assumed that an investor's capital is limited somehow, Helsinki 3 would be the option to go with. It has the balanced ratio in rental income profit and capital appreciation.

The profitability calculations have their flaws. Average figures are used, and refurbishment costs are completely excluded from the calculations. Extending the period could also be wise. For example, gathering data starting from the year 2000 would include years when Finland was in regression. A further study of "how did the regression have an influence in real estate market?" would be intriguing.

All in all, investing in real estate has several factors affecting the decision. Risks, current real estate market situation, low interest rates etc. have a huge effect on the investors decisions and behavior. Sudden increases in profit usually doesn't occur, unlike investing in stocks and bonds. It's a form of investing that generates a steady cash flow without any dramatic fluctuations. Investing in the Helsinki metropolitan area is profitable even though the prices of dwellings are constantly increasing. However, we have to remember that every area and dwelling has unique and genuine factors affecting its price.

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