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Aleksi Tapio

Analysing residential real estate investments in Helsinki

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Author	Aleksi Tapio
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Real estate is a commonly used investment vehicle. However, due to residential real estate's heterogeneous market, picking a good deal is hard and participating can be scary due to its capital intensiveness. The investor has to understand the market and know how to conduct and analysis. The paper addresses the fundamentals of investing in Helsinki under the Finnish legislation.

Helsinki has grown as a city for the past years. Evaluating the city's growth opportunities wields the investors with confidence on the cyclical real estate market. The market analysis will also show the differences between the locations within Helsinki, opening up potential for investors of many kind.

When looking at the process of analysing, the research in this paper focuses the whole spectrum of it: which tools can be used to save time, how to correctly calculate returns and risks and what are the downfalls and benefits of the calculations. The methodology of hedging risks in real estate investing will cover the common fears such as rising interest rate, and will discuss the use of real estate as a hedge against inflation.

The paper uses public data sources for comparative data analysis to find variables which affect the price, and draw conclusions according to the data. This potentially gives the investors meaningful insight on which factors should be held important and which just sound impressive but are not actually important considerations for investment properties.

Mastering the data and analysis are the key to successful investing in real estate, where the intuition can be practised to a high degree to ensure quick response on the best deals that appear. Mastering the real estate investing can then be used as an efficient path to wealth building and wealth protection.

Prices mentioned in the paper are in euros (€).

Keywords	Real estate, investing, analysis

Contents

1 Introduction

1.1 Background for the research

Real estate is an interesting investment vehicle with its unique qualities in comparison to many other asset classes. The markets differ country by country and city by city and the investor needs to understand the basic regulations and legislations to participate. To succeed within the asset class, deeper market knowledge is required together with the ability to analyse investments.

Whenever an investor is acquiring real estate, significant difficulty during the purchase process is to eliminate overly priced apartments from the vast heterogenous offering. The investor's intention is to pick the best value for money, regardless if the value is a steady cash inflow from the investment in long run, or high after repair value to cash out on the deal quickly. An experienced investor or fund manager has the tools and knowledge in place, but an individual with less experience might face difficulties with these big investment decisions. The whole process may seem risky to many people, real estate assets are not very liquid and there are costs, work and time involved in the purchase and sales process. For many people an apartment or a house is the most valuable transaction they will be executing during their lives, and it is usually accompanied with high leverage. As an investment vehicle, real estate is one of the most commonly owned asset class and worthwhile looking into.

Like buyers are invested in proper analysis to get a good deal, the owners of real estate are involved in constant analysing of their properties if they want to stay on top of their game. One might want to optimize his or her portfolio to meet its strategic outlook by selling the weaker properties and possibly replacing them with more suitable units. Every deal is different and there is both luck and skill involved with finding the most suitable deal. However, the luck factor can be supressed to tolerated levels with enough knowledge on how different variables such as optimal size and location play out in the short and long term and how they should be priced in to the deals.

In Finland, own dwelling in 2016 was a significant 66% chunk of households' wealth with the median being EUR 107,200. Even more significant this is to people living in Helsinki or the capital region, where the prices of apartments and real estate are significantly

higher in comparison to the rest of Finland. From the approximate of 5,5 million Finns, 0,64 million live in Helsinki and 1,6 million in Uusimaa region. In Helsinki it may seem like it is hard to find even a studio apartment for double of the median wealth. (Official Statistics of Finland (OSF) 2016)

This means people are taking on significant debt to purchase apartments, which increases the financial risk to the households and the companies involved. In 2018 the Finnish households' indebtedness ratio was reaching almost 130% (OSF 2018). Therefore, the transaction decisions are not hastily done on either side and for an individual investor with low to medium wealth it is essential that when purchasing the apartment, the numbers for the deal are financially sound and all the factors, purchase price being only one of them, are taken to account. Sudden realisations of capital expenditure or hiking interest rates are not always considered in advance and may pose a significant financial distress to the owners of apartments.

1.2 Objective and scope for the research

In the paper, real estate investing in Helsinki is researched with the goal to communicate the basic principles and market knowledge of real estate and its analysing process to the reader. Firstly, the paper discusses real estate investing in general and the laws and regulations that apply to it. This is important to understand before starting mathematical valuation process. Secondly, Helsinki as a market is taken a look into, the general trends and estimations are analysed to support the decision making process. Thirdly the research will look into factors affecting the price as well as on how to make the mathematical analysis.

According to a barometer conducted with real estate agents by Kiinteistömaailma in 2015, the three most important factors affecting the price answered by real estate agents were: location, condition and the housing cooperative. To test this and to find other conclusions interesting to investors, the paper will conduct analysis and use theory to conclude findings from various sources of literature and data. Understanding the fundamentals of real estate and the analysis process can save an investor a significant amount of money and time. By understanding the market data, a handy investor could for example increase the value of an apartment by increasing the number of rooms by altering the floorplan or make arbitrary profits from wrongly priced listing.

In addition to market analysis, as a part of financial analysis, the paper addresses which key performance indicators (KPI) should be followed and what should they look like. The comparative data analysis –section researches on how does the type and location of apartment affect the price and thus the desired ratios and KPIs.

1.3 Literature and terminology

Literature of real estate investing can be found widespread throughout internet, but every piece of information is not applicable in Helsinki due to Finnish legislation and differences within the markets. The legislative parts of paper are backed up from official Finnish data sources such as Finlex and the Finnish Tax Authority's website, the information is checked to be most recent available. For more creative analysis process, some of the information derives from non-academic sources due to the nature of this information. The use of academic research papers is emphasized in the research for economic- and market analysis.

Mentionable public sources of data related to the subject in Helsinki or in Finland are provided by:

- Avoindata.fi <https://www.avoindata.fi/en>
- City of Helsinki <https://www.hel.fi/helsinki/en/housing/planning/current/>
- Statistics Finland <https://www.stat.fi/index_en.html>
- Suomen Vuokranantajat <https://vuokranantajat.fi/en/>
- The Housing Finance and Development Centre of Finland (ARA) <https://www.ara.fi/en-US>

This paper is focused on apartments in Helsinki due to dissimilarities in the market among different cities of Finland, making the research too widespread if whole country is included. The findings probably do correlate with other larger cities in Finland, but the

correlation is not analysed in the paper and the findings are not recommended to be held true elsewhere.

The following terminology can be found throughout the paper:

The real estate market is like any other markets but focused on buildings. It is driven by supply and demand yet regulated and taxed by the government and municipalities, and the profits to investors are driven by the same forces. The role of investors in the market is to operate in the supply side and answer the demand with housing products and services that are most appealing to the customers.

Residential real estate means real estate, which is built for people to live in and cannot be used for other purposes. As residential real estate, there is mostly apartments in Helsinki, and the paper is therefore focused on those.

Real estate analysis is a process with the purpose to evaluate the selected piece of real estate as an investment. It should include all the factors which may affect the investment's returns and risks.

r (after a number) = "room(s)"

Amenity = a feature of property, which increases the property's value to its buyers or tenants.

ARV = after repair value. It is not the value the buyer pays for the apartment, but rather the value that is expected out of it after finishing the planned value increasing fixes.

KPI = key performance indicator

Leverage = Debt used to invest

House flipping / flipping = Buying real estate cheaply with the intention of selling it soon after with profit

CPI index = The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. Used as a measure of inflation.

REIT = real estate investment trust

Spread = difference between the compared prices

sqm = square meters

Vacancy = time in which the rental unit does not have a tenant in it to pay rent

2 Real estate as an investment

2.1 Fundamentals of real estate investing

Real assets such as real estate investment are physical and relatively easy to understand as an investment vehicle. It suits well to investors who want tangible investments or to diversify an asset portfolio. Real estate investments can be accessed directly or through a REIT (Real Estate Investment Trust) and many other ways, these two methods being the most common. Real estate apartments' value has historically protected investors from the inflation by keeping up with the inflation with 0,98 elasticity in residential real estate comparing to US CPI index. It means that residential real estate works almost as a complete hedge against inflation. Meanwhile it has generated steady cash flow to its owners, yet the cash flows do not quite keep up with the inflation with 0,56 elasticity (MIT 2014).

Other characteristic of real estate investing is its suitability to be accompanied with leverage due to banks' willingness to offer fairly priced collateralized mortgages due to its low short term volatility and steady cash flow generation. This increases the return of equity significantly. Due to its lower price volatility and income volatility, it is often considered less risky than some other investment vehicles such as stock equity.

2.2 Taxation

Real estate investing is done either through a company by owning it personally. There are differences to taxation with these two, and an investor should consider the tax consequences of each option. There is no simple answer to which one is better, it depends on the goals and scale, and should be assessed case by case. Where investing on a personal account yields the income straight to one's pocket without having to pay double taxation, the taxation for businesses postpones the taxes and yields in compounding effect in case the holding period is long enough.

2.2.1 Personal taxation

The capital tax for individuals in 2019 is 30% until 30 000€. If the capital gains during the year exceed 30 000€ the rate is increased to 34% (The Finnish Tax Authority 2019). The downside to investing on a personal account is that the taxes are immediate and the tax planning possibilities are very limited, on the other hand the money is in immediate use with the caution of remembering to save some money to taxes (Väänänen, Pekka 2017).

A strategy that can be used when investing on a personal account is to buy an apartment and live in it for two years. One might use that time to renovate the apartment, and if the apartment is sold after living in it for two years, one does not have to pay the capital gain tax on the profit made (The Finnish Tax Authority 2014). This however is very restricting and not scalable, but for many individual it is a very profitable way to start real estate investing.

Some tax deductions are allowed to be made from a list of costs from rental income from flats such as: maintenance and capital charges that are recorded as revenue in the housing co-operative's books, water, renovation costs of annual repairs and modernization, movables and furniture costs and loss of rent. The deductions for these costs have to be made from the same year they occur. Interest on mortgages and letting fees can be deducted requiring that the rent is being priced at market value. (The Finnish Tax Authority 2018)

2.2.2 Corporate taxation

The corporate tax in Finland is 20% but many of the costs such as maintenance- and capital charges are tax deductible. It should be considered, that the investor has to pay another line of taxes when one wants to pay money from the company to one's personal account. However if the money can be held in the company for longer periods, this delays significant portion of the tax to be paid later in comparison to not using a company, and when done carefully, can reduce the total taxes paid and increase the compounding of the investment.

Sufficient tax deduction is a great way to start the tax planning with, but the investor should also consider on whether they can pay themselves salary or dividends. Salary is also tax deductible but the company has to cover all the salary related additional costs and it will affect the person's tax rate. This should only be done if the person has low income and thus pays smaller percentage to taxes. Dividends can be paid with reduced tax liability until certain amount. The limited tax liability dividend is taxed by only 25% of the dividend, making the total percentage 7,5%. The amount of eligible limited tax liability dividends is calculated as 8% of the company's mathematical value on the last closing of the books. (The Finnish Tax Authority 2018)

2.2.3 Property tax

The Finnish property tax is a tax based on the taxation value of land and buildings, and is paid to municipalities. The Finnish property tax is regulated by government but decided on municipality level. Every municipality decides their chosen property tax within the guidelines of Finnish government's decision. The municipalities decide at least two rates of tax: a common property tax rate and a tax rate for permanent dwelling. The tax for land of the permanent dwelling is determined by the common property tax.

In addition the municipality can decide tax rates on building used for other than permanent dwelling and for unbuilt land if the land fits certain criteria. In 2018 the government guidelines for municipalities were following: common property tax rate ranges from the minimum of 0,93% to the maximum of 2,00%, a tax rate for permanent dwelling from 0,41% to 1,00%. If the municipalities decide tax rates on buildings other than permanent dwelling, the rate should be from 0,93% to 2,00%. Unbuilt land is decided to be between 2,00% and 6,00% and in the capital area and its development

areas, this tax should be at least 3% higher than the common property tax rate with the cap of 6%. (Finlex 2019) In Helsinki the Finnish Tax Authority published the property tax rates for 2018-2019 as following:

Municipality		Common property tax%		Property tax on permanent dwelling%		Property tax on other dwelling%		Property tax on non-profit corporation%		Property tax on unbuilt land%		Property tax on powerplant-estate%	
Mu#	Name	**2019**	2018	**2019**	2018	**2019**	2018	**2019**	2018	**2019**	2018	**2019**	2018
091	Helsinki	**0,93**	0,93	**0,41**	0,41	**0,93**	0,93			**3,93**	3,93	**3,10**	3,10

Table 1. Property tax in Helsinki

2.2.4 Capital transfer tax

The Finnish taxation requires the buyer to pay 4% transfer tax calculated from the value of the asset. This is significant consideration if the intention is to buy apartments cheap and increase the value and sell out quickly. However, if the apartment is bought for personal account, one doesn't have to pay this tax in case this is one's first dwelling and bought as a home. (Finlex 2019)

2.3 Real estate investment strategies

There are multiple approaches the investor can go after and every individual eventually shapes their own exact strategy or mixture of strategies. Different approaches have different pros and cons, some which require great market knowledge, such as operating as a real estate syndicator, and others which require plenty of capital, for example sponsoring a large deal. Three common categories related to apartment investing are looked in the following chapter which further spread to multiple niches. Investors tend to focus on certain strategy, in which they will become experts at, but diversifying can also play a role in risk reduction. Expertise and well established networks are key to success in every branch and niece of real estate investing. Picking a suitable strategy depends on preferences as well as on how much time one is willing to put in.

2.3.1 Long term buy-and-hold strategy

Probably the most passive of the active direct ownership strategies is long term buy and hold strategy. This is a popular strategy built on the cash flows from rent and is usually

less dependent on the price fluctuations. Buy and hold investing focuses on rising rents and keeping the apartment and service quality appealing to attract good tenants while cutting down on maintenance costs. The strategy is tax efficient, and even further in cases where prices increase, depreciation and tax deductions postpone the tax bills and thus increase the compounding effect. The category is wide, and strategies where the apartment is held for a ten years for example can be described long term. The holding period does not have to be until perpetuity. Although this strategy is passive, it requires maintenance, which can be outsourced to professional property managers. While this reduces the profits made, it also reduces the time spent to manage the investment and if the manager is good, increases the investors' valuable time which can be spent on other important things.

The largest online real estate investing community in the US called BiggerPockets has made the term BRRRR widely used way to describe an efficient wealth building strategy built on long term holding. BRRRR stands for Buy, Rehab, Rent, Refinance and Repeat. Buying an old apartment and fixing it up to optimize the rental income creates higher cash flow, and if done right, the after repair value (ARV) should be higher in new appraisal. After getting re-appraised, the investor goes back to the lender and pulls the generated equity out from the apartment to buy another deal. This way the investor does not have to sell the property and pay taxes for capital gains. The capital should start snowballing quickly after the first few deals as the equity can be withdrawn again and again from the older deals as long as the bank is willing to lever the investor. (Turner, Brandon 2018).

Popular way to increase the profits of long term holding by increasing risk and work committed to the business. One common way is to rent the apartments as short term rentals through platforms such as Airbnb. The risk of vacancy increases but the daily rents make it worthy to a committed investor. The investors who are focused on owning the apartments for a longer period can further diversify the portfolio with these kind of niches. With Airbnb one should be careful if it is used to rent out own home. Renting your house even for a short time cuts the two year holding period before tax free capital gains from sales (in the taxation part).

2.3.2 Short term capital gain strategy (house flipping)

Some real estate market participants use their established networks and knowledge to find wrongly priced deals or to bring value to existing apartments whether it is renovations or cost cutting or anything else valuable to the estate's owner. In this strategy the capital is intended to be tied for minimum time increasing the annual capital turnover and to release the capital for a new deal quickly. "Flipping" strategy is risk and reward focused and the investors often try to drive the value up quickly with renovations by purchasing an apartment which is in bad condition and renovating it to a good quality apartment. The risk is due to miscalculations in renovation costs and unexpected expenditures. Sometimes flipping can also be done with new apartments bought from wholesalers who want to get rid of them quickly and are thus willing to price them under the market price. In this case the investor takes the risk related to vacancy and sales and is rewarded with the spread between the wholesale price and the market price. There are also many niches in flipping where value is caught from other ways.

2.3.3 Wholesales

Wholesales is also a niche of short term strategies but as it is a specific form of doing real estate business it is worthwhile mentioning. Some well-established investors and real estate syndicators use volume-based strategies to capture a margin. Wholesalers buy in large volumes from other large real estate participants and divide the deal into smaller deals to suit individual investors, sometimes with other added value services included. Some investors find wholesales great way to increase business volume in the business of house flipping. However due to its capital intensiveness, it is not common strategy for common individual investors.

2.4 Renovations

Renovations are a feared element amongst the people considering investing to their first apartments. There is a legitimate reason for that as the renovations can be very costly. The costs are dependent on location, the building structure, what is included and what materials are used. A list of most common large scale renovations with the estimated prices and lifespans are listed below (Hänninen, Heli 2019 on Sijoitusovi.com):

Type of renovation	Lifespan (years)	Cost range	Comments
Piping	40-60	450-900€/sqm	The costs are dependent on: renovation method, size of the building and the scope.
Exterior surfaces	20-50	100-500€/sqm	The costs and life span are dependent on what is made and the material of the surface.
Roof	20-50	15-80€/sqm	The costs and life span are mostly dependent on the material.
Balconies	20-50	50-200€/sqm	The costs are dependent on what is made and the balcony type. (with roof/open)
Windows	30-50	50-120€/sqm	The costs and life span are especially dependent on the design and the framework material.
Elevator renovation / building a new elevator	25+	20 000-200 000€	The costs depend on whether an existing elevator is modernized or a new elevator is built.

Table 2. Approximate costs for common large renovations. Costs per square meters are calculated for apartment space.

The cost ranges in Table 2 are approximations and are dependent on many things. However they work as guideline in analysis process, and as investors do not always know the exact methods and materials used, they should use higher than expected estimations to price in a margin of safety for the capital expenditure. Participating the management decisions of the housing cooperation can increase the investment's profitability if the necessary renovations are done, but are not inflated to keep the costs in control.

3 Helsinki market analysis

Helsinki is the capital of Finland, located in the southern coast. It is surrounded by growing metropolitan cities, Espoo and Vantaa being the largest. The area is benefiting from dense clusters of companies and infrastructure resulting in strong economy and growth. The real estate prices have recently appreciated much faster in the capital region related to the rest of the country. It is also one of most growing cities in Finland measured in both birth-to-death ratio and population net inflows from other cities. In 1990 the population was merely 492 400, similar size to Estonian capital Tallinn (479 666). Going

27 years forward Helsinki has grown 31% while the population of Tallinn has shrunk by 11%. (Official Statistics Finland 2017)

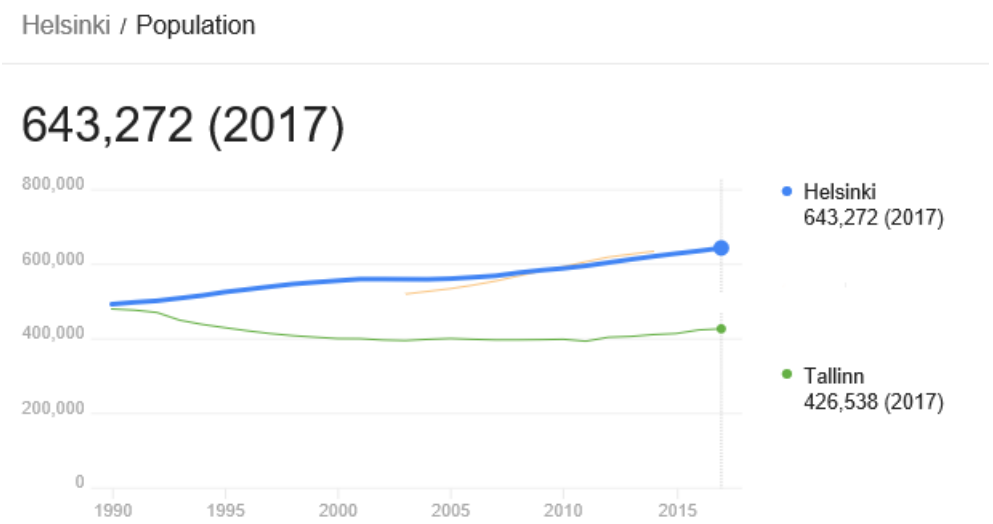


Figure 1. Population growth in Helsinki (1990-2017), Official Statistics Finland (2017)

Key statistics from 2017	Helsinki	Whole Finland
Population	643 272	5 513 130
% change in population related to previous year	1,3	0,2
% of population under 15 years old	14,3	16,2
% of population between 15-64 years old	68,9	62,5
% of population over 64 years old	16,8	21,4
Natural new change of population (births-deaths)	1 524	-3 401
Net change in population flows between municipalities	5 027	0
Number of families	158 063	1 471 500
Number of households	330 933	2 680 077
% of households living in row houses and other small houses	13,3	39,4
% of households living in rental apartments	49,2	32,7
Employed workforce living in the area	309 685	2 327 730
% of workforce employed (age 18-64)	71,7	70,5
% of workforce unemployed	10,3	11,3
% of people retired	19,6	25,7

Table 3. Key statistics from 2017, Statistics Finland

This is particularly interesting to people interested in real estate, as increasing population drives greater demand for housing. As seen on the table above, 49,2% of the population are living in rental apartments, which is significantly higher than the whole country average, and is beneficial for a landlords as the demand for well-maintained apartments

is high. The government also supports rental living over owned dwelling for students and people on social benefits and the amount of the housing benefit is subject to the cost of rent until a certain threshold creating a market for small studio apartments and shared flats. Strong demand drives people who are living in Helsinki besides paying higher rents, getting more money from the social benefits to cover it, reducing payment risks to investors. Since 1970, the real estate prices have risen 250% in old dwellings in blocks of flats which could have protected investors well from inflation in addition to constant cash flows from rents. In the recent years the significance of owning the apartments in Helsinki has increased as the gap between the prices in Helsinki in relation to the rest of the country has widen rapidly. See figures 2 and 3 below.

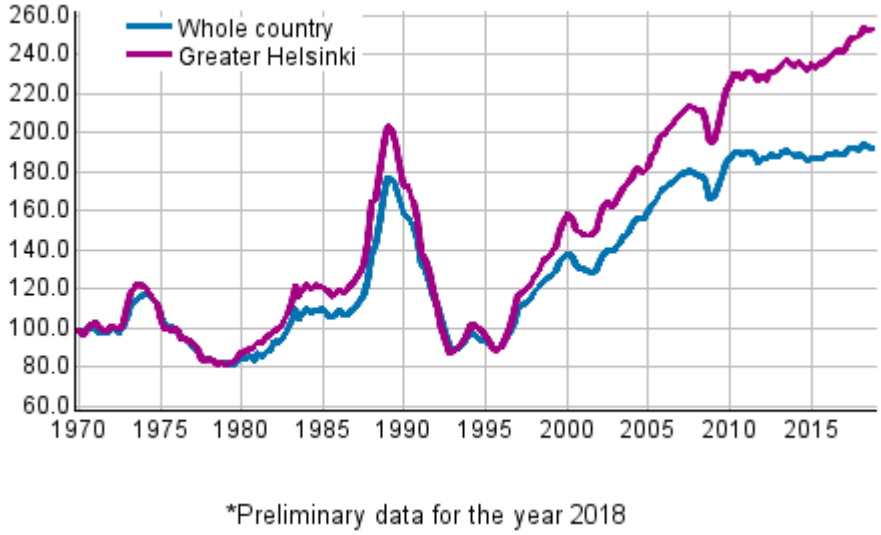


Figure 2. Real Price Index of old dwellings in blocks of flats, index 1970=100, Statistics Finland

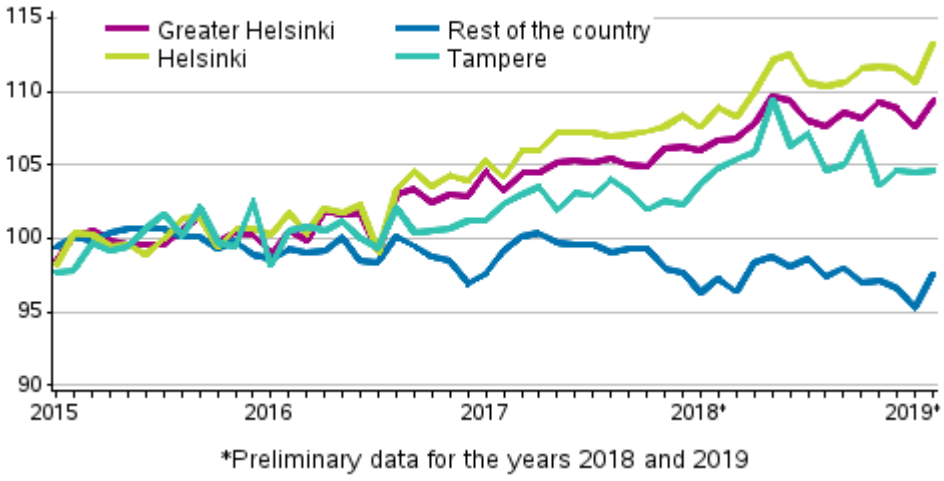


Figure 3. Real prices in old dwellings 2015-2019, Official Statistics Finland

Looking at the data shows that investors in Helsinki have enjoyed superior price development to their assets. Tampere is shown in the graph as it is one of the other prominent cities in Finland with positively growing population and strong fundamentals. In 2020 Finland has only 3 growth centres left: Helsinki, Tampere and Turku. (MDI 2019) Smaller cities in Finland have already experienced strong deficits with moving population having an impact on their real estate prices.

The increases or decreases of the asset price is hard to predict accurately in to the close future even if one knows the market in depth. Global and local trends do affect the price movements as well as governmental decisions but the big trend favours Helsinki. For an investment point of view, a safer way to estimate the profitability of an investment is to analyse its cash flows. The rental market in Helsinki is driven by strong demand and the municipalities, institutions as well as small private market participants are responding to it by offering large quantities of real estate for rental. The rents per square have had constant increase and are protecting the investor from inflation, and comparing the rents in Helsinki to the other parts of Finland, one can see the price gap widening vastly from the middle of the 1996 forward (Figure 4).

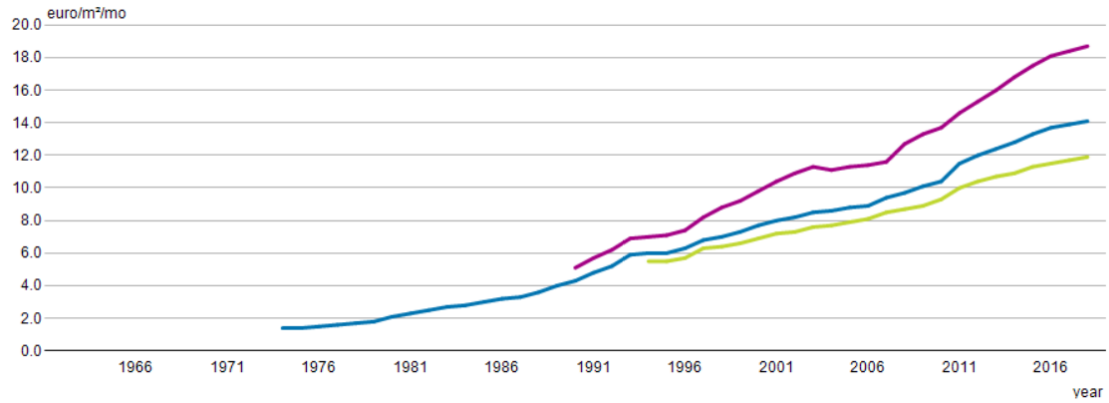


Figure 4. Average rents per square metre (€/m²/month) since 1962, purple line being the capital region, blue line being the whole Finland and green line being other parts of Finland, Statistics Finland

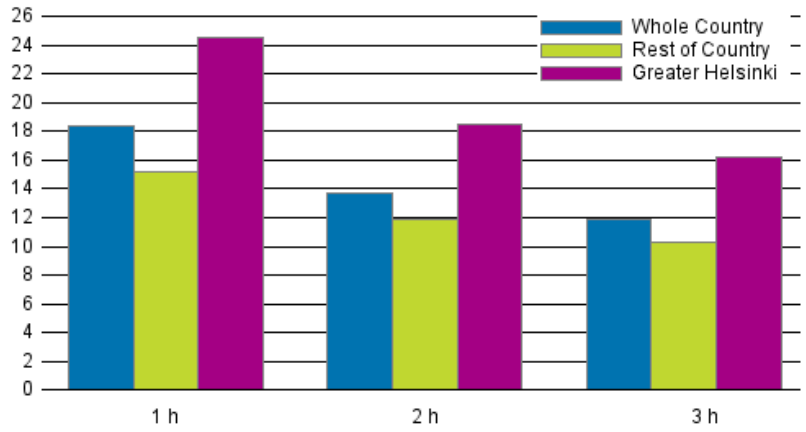


Figure 5. Average rents per square metre (€/m²/month) by number of rooms in 2018, new tenancy agreements for non-subsidised rental dwellings (h = room count), Statistics Finland

It is hard to predict accurately whether the price gap will keep on widening, but the predictions of the official numbers published by the City of Helsinki support this trend forward. Three estimates are cast: optimistic, neutral and conservative. According to the neutral forecast, in 2025 Helsinki will reach population of 700 000 growing to 822 000 by 2050, (City of Helsinki 2018). New buildings are built with large quantities to meet the need for rising population which decreases the inherent housing problem, yet the market is predicted to stay strong and stable. Cheap debt has boosted the investments made in this sector as well as in the whole economy, and the shift in interest rates could have an impact to the heated market. Macro-economic trends do not change the fundamentals, while macro trend might make the market more cyclical, the direction should stay the same in the long term with the fundamentals in place.

4 Comparative data variable analysis on apartments sold in Helsinki

One of the best indicators when appraising real estate is to compare it to similar, already sold real estate from the area. Real estate agents provide a great support with their local market knowledge on this matter. This is a great indicator in sellers' market to analyse how much an apartment is worth. From buyers' perspective, this is not as great indicator to buy an investment apartment as the market consists of both home buyers as well as investors. Home buyers can often pay premium for their liking as they do not care so much about the underlying investment figures. In this section, we are using data which

Ministry of the Environment has collected from multiple real estate agencies consisting most of the apartments sold in Helsinki for the last six months. From the data we look to see how location, room count, energy efficiency, elevator and square meters behave in large quantities of data. We aim to derive a statistically significant conclusion, however there is several inefficiencies in the data. The data input is not in a standardized form, so we are missing other significant structural properties of the apartments other than square meters and room count. Kitchen is not count as a room nor are bathrooms or small entrance halls. Some of the variable classes may be too small and thus are not reliable sources of information.

4.1 Location

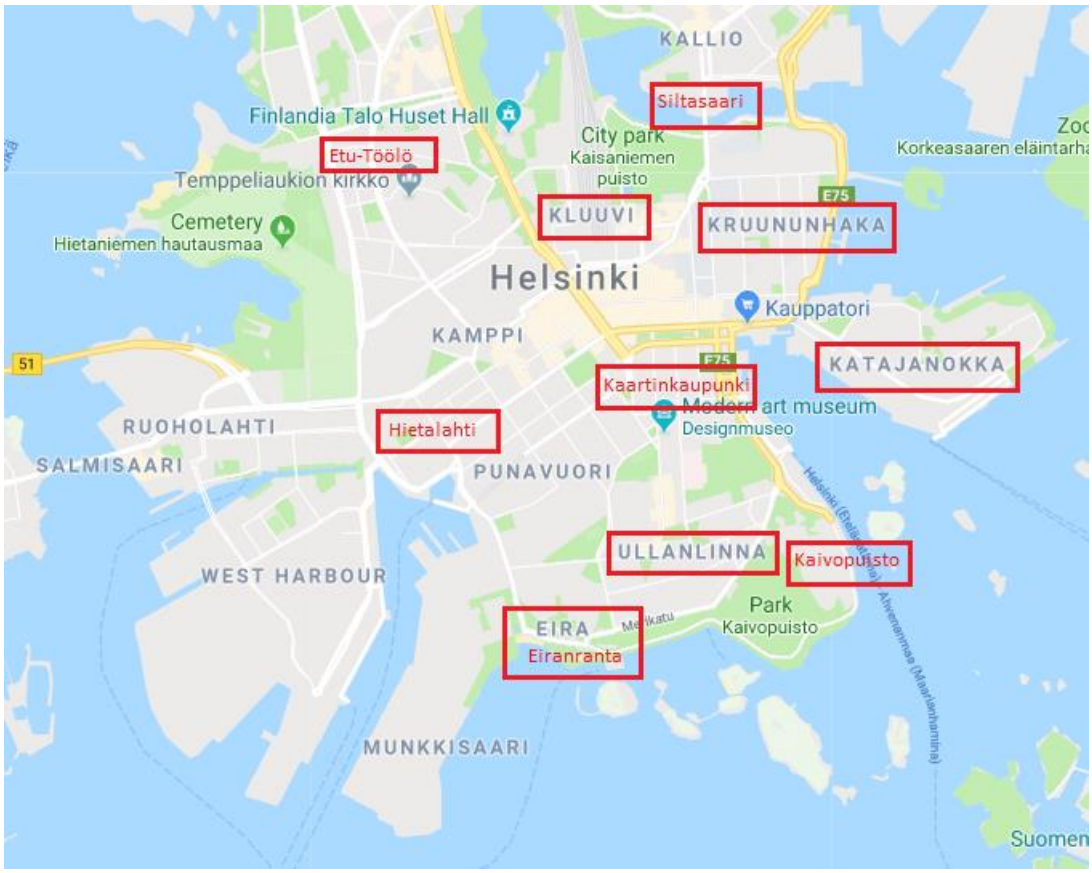
"Location, location and location"

Location is often said to be the most important factor in the value of an apartment. Even if the apartments would otherwise be identical, an apartment with a great location can be multiple times more valuable than an apartment in a bad neighbourhood. Having amenities nearby the apartment makes it more attractive to home-seekers. These amenities can be for example a public transportation hub, a mall, a beach, a school, a hospital and almost anything else that can be seen bringing value to someone's life. High quality architecture and prestigious elements such as historically valuable buildings contribute to whole area's prestige. Areas with urban natural amenities create additional value in the central area where natural unbuilt land is scarce. Therefore, proximity to parks and yards are effecting the central locations more than sub-urban areas. (Lönnqvist, Henrik 2015)

In this part, the data sample from Ministry of the Environment is used to analyse how different locations in Helsinki affect price. When dividing the apartments into classes with comparative room counts by their location, one can determine a clear consensus of each location's effect on price of the apartments (Appendix 2, table). From the table seen in Appendix 2, we find strong correlation amongst the five most expensive locations as well as the bottom five. If we exclude the fifth comparative column due to its small size, we find that from the top five most expensive average prices for location, the following locations are listed (Table1):

Location	top 5 count
Eira	3
Eiranranta	3
Kaartinkaupunki	2
Katajanokka	2
Kluuvi	2
Etu-töölö	1
Hietalahti	1
Kaivopuisto	1
Kallahti	1
Keskusta	1
Kruununhaka	1
Siltasaari	1
Ullanlinna	1

Table 4. Count of the top five most expensive locations by average in the four comparative groups.



Map of central Helsinki according to Table 4. Excluding Kallahti and Keskusta. Keskusta is a general term of central location. Kallahti is shown in the next map with the cheapest as blue circle due to its further location.

We can draw a clear consensus of the most expensive locations being in the very central locations of Helsinki on the coast side. Kallahti is a bit further from the center (shown in the next map) but it is also on the coast of Helsinki. Some real estate agents who have input the data used “Keskusta” term (“Centre”) although it is not an exact location. Therefore it was included in the most expensive areas list. Investors who have bought these locations years ago, has enjoyed great appreciation for the prices of the buildings. The best locations are scarce, and these areas are almost fully built with no new houses being built. Therefore the markets expect the value to hold or increase and this drives the prices.

McDonalds, the worldwide known fast food chain, owns a lot of real estate in the best locations all around the world. The former CFO of McDonalds, Harry J. Sonneborn quoted: “We are not technically in the food business. We are in the real estate business. The only reason we sell fifteen-cent hamburgers is because they are the greatest producer of revenue, from which our tenants can pay us our rent.” The management of McDonalds understood early on the importance of location and is now one of the most successful companies in the world. There are only so many premises with the best locations in Helsinki, and if the building is well built, the apartments are not expected to lose value in flat or up trending economic cycle.

As seen in the Appendix 2, there are plenty of other expensive locations left than those listed in Table 4. Most locations in the central Helsinki can be found coming right after the most expensive locations. The more interesting locations for investors can be found in those which are surrounded by more expensive areas and are for some reason not appreciated equally, expecting the appreciation to spread in the nearby areas.

To compare the good locations which have appreciated greatly in the past years, the more cash flow producing units can be found in the cheapest locations. These cheapest locations are listed below with the same methodology. From the five cheapest locations we find even stronger consensus (Table 5):

Location	bottom 5 count
Kontula	4
Siltamäki	3
Suurmetsä	3
Tapulikaupunki	3
Jakomäki	2

Mellunmäki	2
Pihlajisto	2

Table 5. Count of the top five cheapest locations by average in the four comparative groups.

Map according to Table 5. The cheapest average prices for apartments (red). Kallahti included in the map (blue).

By analysing the findings of Tables 4 and 5, we see that the data of most expensive areas is not as strongly concentrated than with the cheapest areas, where the location pushes the average prices down on few selected locations. Where having an apartment locating in Eira or Eiranranta seem to be very strong positive correlation with the average prices. Having an apartment in Kontula results even stronger negative effect on the price averages. Geographically, it seems that most of the more expensive locations focus on the almost island-like centre of Helsinki, while North-Eastern Helsinki is clustering with all the cheapest locations. The area is sub-urbanized with plenty of apartments and has no significant natural amenities in close approximation.

However, this does not tell the investor where to invest. The apartment in Eira is more than likely to generate worse cash flows than one in Kontula, but if the appreciation of the apartment in Eira continues, the investor might catch a hefty profit in the future. As

Helsinki is growing, if the spread between the prices of locations start closing, the locations which were previously neglected by investors, could appreciate in the future. In the table below is listed the most expensive and the cheapest locations by average (Table 6).

The most expensive average price in comparison with the cheapest average price			
Kallahti (1r)	350 000,00	Kaivopuisto (3r)	1 100 000,00
Mellunmäki (1r)	96 333,33	Kontula (3r)	129 834,94
Difference	253 666,67	Difference	970 165,06
Eiranranta (2r)	825 000,00	Katajanokka (4-5r)	1 535 102,00
Suurmetsä (2r)	106 000,00	Suurmetsä (4-5r)	128 000,00
Difference	719 000,00	Difference	1 407 102,00

Table 6. Analysing the spread between the most and the least expensive locations

In Table 6, we can see how the spread has a strong positive correlation with the room count. This is probably due to strong demand of family apartments in good locations. In the cheapest areas, one does not have to pay much more for a family apartment compared to a studio. Analysing the data, it seems like apartment with higher room counts enjoy the greatest increases in prices in up-trending neighbourhoods.

4.2 Elevator

For many home seekers, having an elevator is a requirement when buying a home or moving to a rental. This is especially true with elderly and physically impaired. It is expected that this variable would affect the prices as it increases demand. From the same data, we select the variables “price” and “elevator” and use the average prices within the same comparative classes (room count).

Room count	1	2	3	4-5	5-6
Elevator (yes)	190 752,20	231 354,29	297 934,95	464 663,84	599 250,00
Elevator (no)	205 349,31	287 089,93	373 782,95	577 330,71	1 241 470,00
Difference	14 597,11	55 735,63	75 848,00	112 666,88	642 220,00
Total average	199 857,56	263 744,42	345 366,36	545 879,53	1 057 978,57

Table 7. Elevators

Analysing whether the building has an elevator or not, we find that having an elevator has a significant effect on the market value of an apartment. We can see that the difference once again increases with more rooms in the apartment. However, the data does not give out all the information behind such as whether elevators are build more in the valuable areas such as the centre of Helsinki in comparison to cheaper locations?

4.3 Condition

Condition is subject to observer and not an absolute indicator. However, logically the condition of an apartment should have an impact on the price. In the following analysis, the variable is taken under observation to determine how important quality is to the market and whether an investor can draw conclusions from the data. Using the data with the same comparison groups and sorting the data by the condition, we see that the condition is not a reliable indicator of price. While the apartments listed as “good” quality were consistently priced above total average, the data shows illogical results with three room as well as four-to-five-room apartments in “moderate” and “bad” categories.

Rooms	1	2	3	4-5	5-6
Good	210 331,43	286 091,01	373 760,80	600 278,94	1 089 444,44
Moderate	188 620,00	230 959,96	292 221,78	435 849,98	1 001 340,00
Bad	185 474,52	227 010,58	323 167,33	702 994,00	N/A
Total average	**199 857,56**	**263 744,42**	**345 366,36**	**545 879,53**	**1 057 978,57**

Table 8. Quality of apartment

By looking at the findings of Table 8, we see that either the statistical value decreases with larger houses in the data sample or the condition becomes less important variable. The former concern on the data quality was confirmed true, the data sample consists of 1738 “good”, 1071 “moderate” and 103 “bad” condition apartments. From the bad condition apartments, 22 were 3-room apartments and only 9 were apartments with 4-5 rooms and most of them from expensive locations.

Due to the skewness of the data, we can conclude, that Table 8 can held statistically meaningful only with comparing “good” and “moderate” condition apartments. We can also draw a conclusion that only a few apartments are for sale in bad condition. This can potentially supress the business opportunities for some of the house flipping strategies.

4.4 Living area in square meters (sqm)

Having a roof on your head is for many people, a necessity. Having few extra square meters creates comfort and makes home more enjoyable. It is safe to say, that the number of square miles should have a positive correlation with the prices of apartments. In this part, we use the same data, and evaluate the whole sample on how the square meters affect price.

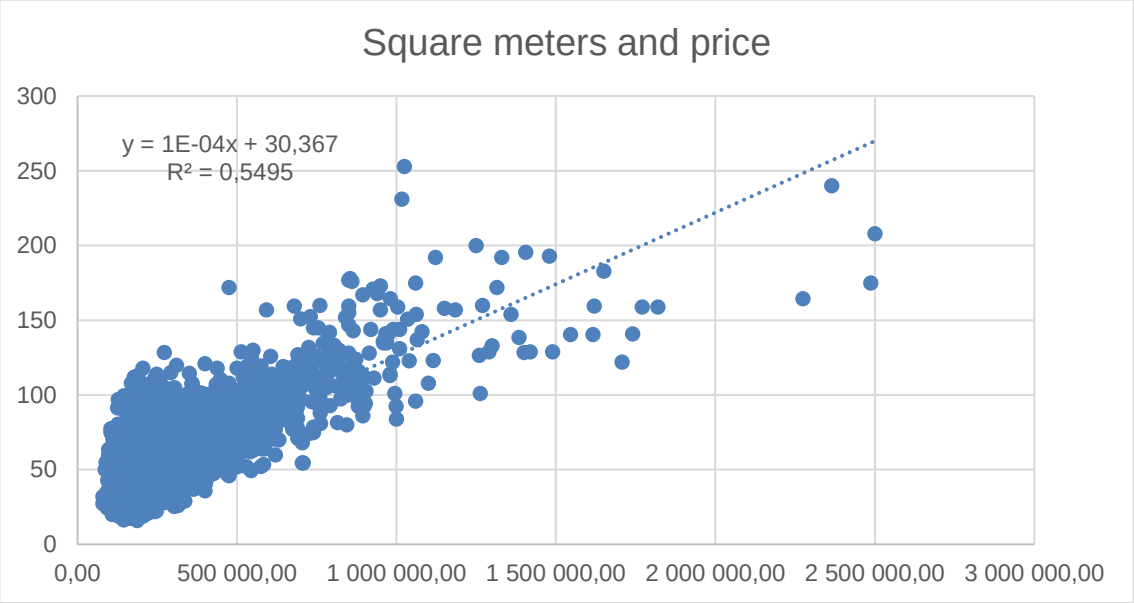


Figure 6. Scatter plot of the relationship between square meters and price. Each dot represent a sold apartment.

The scatter of Figure 6 shows, that although there is a consensus of increasing prices with increased square meters, the scatter is wide. With 400 000€, one can get a range of 36 to 100 square meters, depending on other variables. Therefore, if square meters are used, they should be used within comparative classes with properties which have similar features and locations.

In the table below are average prices, average rents and average price per square meter. These are analysed within the same comparative classes within room count. Assumption is that increased room count should increase the amount of square meters and decrease price per square meters.

Room count	Avg price €	Avg m2	Avg price/m2
1r	199 857,56	31,12	6 558,21
2r	263 744,42	51,34	5 154,59
3r	345 366,36	73,34	4 624,74
4-5	545 879,53	103,64	5 021,23
6-7	1 057 978,57	166,54	6 063,36

Table 9. Pivot of averages of: price, sqm and €/sqm within comparative classes.

As assumed, the average square meters did increase with the room count, but surprisingly the average price per square meter seems to bottom with 3-room apartments and hikes back up towards larger apartments. Studio apartments were the most expensive per square meter as assumed. According to this, an investor gets most square meters by buying 3-room apartments.

4.5 Energy efficiency certification

The Housing Finance and Development Centre of Finland (ARA) maintains a database of energy certificates for buildings granted after 2015. Energy certification is required for selling, renting and to construct housing. It measures the structural energy consumption (excluding the consumption of individuals) and multiplies it with defined multiplier of the source of the energy (Ympäristöministeriö 2018). The certification is available for public with few exceptions on smaller buildings with only one or two apartments due to privacy regulations. Its purpose is to establish more transparency in the housing markets, letting the buyers and tenants see the expected energy consumption in advance. (ARA 2018) It is always granted by ARA certified entities, and is valid for ten years from the granting. The scale is from A to G in the alphabetical order, A being the best.

The data was used to analyze the relationship between the energy certification and the price, however, many of the items in the sample were still missing energy certification, and are listed as “(blank)”.

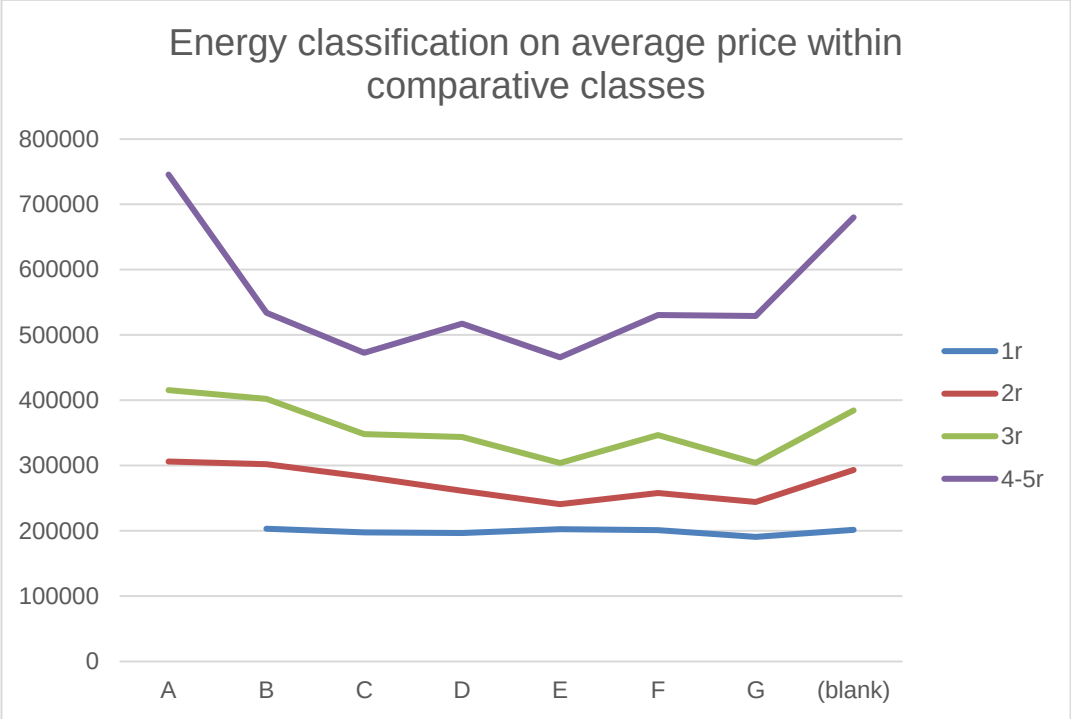


Figure 7, Energy certification's effect on the prices in comparative classes

At first, the data seems to show that apartments with lower energy efficiencies seem to decrease in price. However, from E to G the prices tend to neutralize or go back up again. The data's validity can be questionable, as new buildings often have higher energy class (A,B and C) and therefore the causation of energy class being the driver of these prices is questionable. It can also be caused by the condition, the building year or the absence of renovations in the new buildings, or the combination of these three.

Unlike location or size, energy efficiency can be increased with better insulation and ventilation systems, or changing the energy to renewable sources for example.

4.6 Building year

Building year affects the typical architecture as well as typical upcoming renovations. For an investor, the building year itself might speak of certain risks related to the buildings. These typical risks for certain building years are for example the use of asbestos in buildings, risk of molding, problems with flat roofs, "false bottoms" and other. A quick data analysis reveals the average prices of buildings in certain building years.

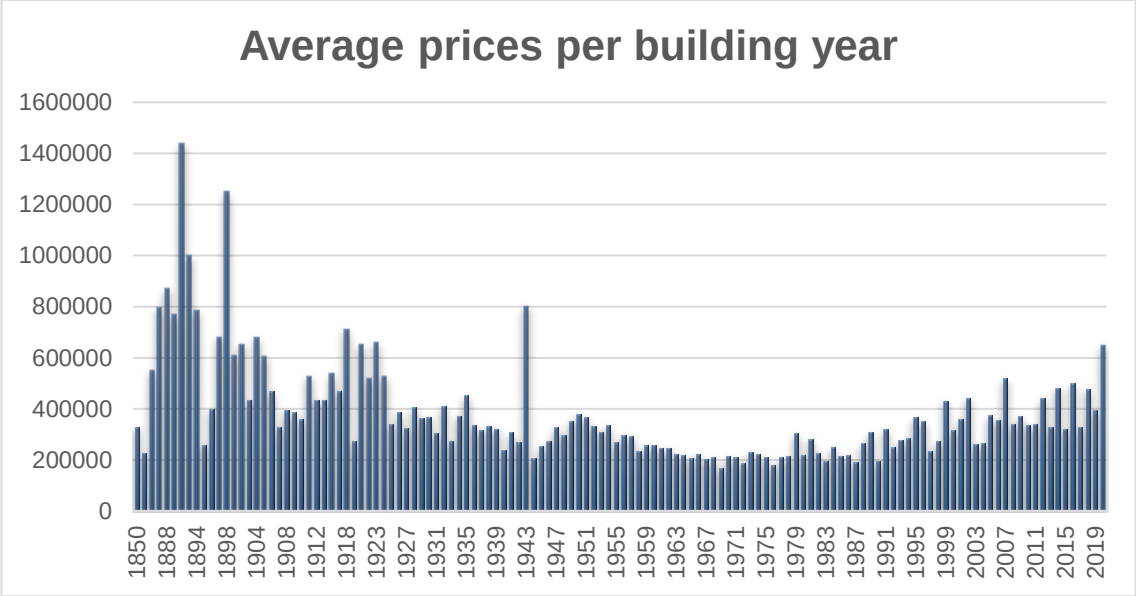


Figure 8. Pivot chart of average prices for each building year.

The chart shows that buildings built between 1960 and 1990 seem to do the worst in the markets, while the very old are the most expensive and the newer buildings being more expensive as well. The U-shape like curve might be caused from various factors from architecture to the large renovations such as piping renovation which occurs in buildings 30-50 years old. The well-built very old buildings are also more likely to be built in more central locations due to the growth of the city. Badly build structures from the left end of the Figure 8 are likely to be already torn down and replaced by new ones, leaving the expensive well-built structures in place.

5 Calculating returns and the key performance indicators

5.1 Methods of calculating return

There are multiple ways to analyse and calculate the returns for potential and current investments. This following chapter discusses how data can be used to determine indicators to mathematically evaluate the real properties' profitability.

Due to the nature of real estate investing many different outcomes may derive from the same property. Financing, leverage, taxes and the time horizon are all factors which are investor and deal specific rather than connected to the property. Occasionally the

property is sold with a loan connected to it, but even in these cases there is often an option to pay the unit specific part of the real estate company's loan to de-lever the property. Regardless of the variability of the investments, the investor can calculate a return that will indicate close approximate of the real return without knowing all the specifics such as the accurate capital expenditure for renovations or the future interest rate. Forecasting models can be used with different scenarios to avoid getting surprised and safety margins should be priced in to an offer.

The key elements for a real estate analysis are as following (J. Scott, 2010):

Details of the property: Information including the physical design of the property and the condition of it, number of rooms, square meters, utilities and so on. This information should be provided by the seller or the agent representing the seller.

Purchase details: Basic numerical cost information of the apartment you are analysing. This is for example the purchase price, the price of any renovations and upgrades you are planning to do. The purchase price should be provided by the seller and should be negotiable and the purchaser should find a suitable number for this. For renovations costs the investors should use a professional property inspector and make proper estimations after the inspection.

Financing information: details of the loan you will use to finance the deal. Consists of total loan amount, down payment, interest rate and other costs related to financing. This can be inquired from the lender in advance.

Income: This the detailed information about the income the property produces, such as rent payments. The seller should provide this information, but it is advisable to inquire it straight from the property management company if one is used.

Expenses: Should include all the costs of maintaining the apartment, these are for example property taxes and maintenance charge. Obtainable from the seller, the possible property management company as well as by consulting the inspector if used.

Some of the most commonly used indicators are: capital expenditure rate (CAP rate), return on equity, cash-on-cash return, payback period, net present value and internal

rate of return. Some other as well as variations to the above are also used, but these were chosen to be analysed below due to their widespread use.

5.1.1 Capitalization rate

Capitalization rate (cap rate) is a measurement tool for the property's current market value's ability to generate income. It excludes the cost of financing and is often used to calculate the asset's ability to pay for the cost of loan. Capitalization rate is calculated as following:

$$\frac{Net\ operating\ income\ (NOI)}{Market\ valuation\ of\ the\ property}$$

The cap rate is a good indicator to be used when calculating the ability to pay for the loan payments as some of the interest from financing expenses are tax deductible and cap rate uses NOI rather than net profit. It is also good for analysing already existing portfolio as it only indicates the performance of the asset and ignores the financing structure of the deal. This way the investor can easily compare the assets' performance.

5.1.2 Return on equity and cash flow after financing return on equity

The latter is also known as "cash-on-cash return". Return on equity indicator is preferred when calculating the real return for the investors' equity in the property while cash-on-cash return indicates the pre-tax cashflow captured for the cash used. These are great indicators for an investor who knows the costs of financing and the amount of leverage used. Return on equity and cash-on-cash return can be calculated as following:

Return on equity

$$\frac{annual\ net\ profit}{Average\ equity\ in\ the\ property\ during\ the\ year}$$

Cash-on-cash return

$$\frac{pre\ tax\ cashflow}{total\ cash\ used}$$

These are not great formulas to be used to get a picture of the investment's whole holding period as they must be re-calculated as the real property investments tend to develop and leverage changes. Return on equity favours the use of high leverage which may push the investor to greater risk taking. High leveraging does increase the payments

which may decrease cash flow, but also cash-on-cash return prefers leverage to reduce cash input for the property. Cash-on-cash return together with positive cash flows from the property is often prioritized by investors who have no excess cash from other income sources or prefer the investment to be very autonomous without the need of outside financing.

5.1.3 Payback period

Payback period is very simplistic indicator which somewhat self-explanatory. It tells the time in which the investment has earned its purchase price back. This is calculated assuming continuation of holding period until the investment is paid back even if the investor would consider selling the investment before the break-even. Ideally, the shorter the payback period is, the better should the investment be. It can calculated as following:

$$\frac{Cost\ of\ investment}{Annual\ expected\ return}$$

The payback period has its faults too, for example ignoring the time value of money. In addition it ignores whether leverage is used or not.

5.1.4 Net present value (NPV)

Net present value is a more sophisticated indicator to calculate the current purchase price for an asset when required rate of return and future cash flows are known. It discounts future cash flows to current moment with the discount rate being the required rate of return. Excel is a handy tool for calculating NPV with its NPV function.

$$NPV = \sum_{t=0}^{n} \frac{Rt}{(1+i)^t}$$

Net Present Value, Investopedia 2019

In the formula, Rt represents the net cash flows from specific period t.

5.1.5 Internal rate of return (IRR)

Internal rate of return returns the discount rate for the NPV. It is a sophisticated indicator used by professional investors to analyze the investment's whole holding period. It is very useful as it tells about the profitability of the investment with greater accuracy from the whole holding period. It is useful not only as an indicator but the data that need to be put in requires more thought and analysis on and thus forces more thinking to get the cash flows in place. This may help form comprehensive picture of the investment while some of the easier-to-calculate indicators may lead the investor to think short term and make a wrong conclusion. IRR is calculated as following:

$$\text{IRR} = \text{NPV} = \sum_{t=1}^{T} \frac{C_t}{(1+r)^t} - C_0 = 0$$

where:

C_t = net cash inflow during the period t

C_0 = total initial investment costs

r = the discount rate, and

t = the number of time periods

Internal rate of return (IRR), Investopedia 2019

5.2 Risk analysis

> *"Leverage does not add to value in the absence of income taxes and costs of default if borrowers and lenders have the same judgments of the future prospects of the real estate investment."* (McDonald 1999, 251)

In the quotation above McDonald refers to markets being efficient and lenders pricing the risk correctly to the interest rate. It also bring up the question of value. Many investors use real estate as an investment vehicle of choice due to its feasibility to being used to lever one's equity for wealth building purposes, and with interests being more or less deductible, leverage is bringing value to many investors as McDonald also admits later in his paper. The entry barrier without the use of debt is for many people impairing and they could possibly never participate on the real estate market with just savings. Leverage both increases wins and increases losses, however by optimizing one's portfolio with consideration to one's risk-bearing ability, the risks can be mitigated to

acceptable levels. What also reduces the risks to all participants are strict regulations on banks as well as their internal controls. Private money and shadow banking pose a risk of offering unrestricted leverage which may tempt a lot of investors on upward trending market. Since the last financial crisis, non-banks have increased their share of mortgages vastly while large banks with stricter regulations have plunged (Wolfstreet, 2019).

As the leverage used rises, banks require higher interest for increasing risk. For individuals with less properties on hand, they are often willing to give low margins due to their low risk. When investing is more professional and the volume increases, the banks recognize it as increase in risk as one's personal salary cannot cover larger holes in cash flows anymore. The dilemma of increased default risk with increased interest rates do not pose a financial problem for lenders if the foreclosure procedure is not costly as the loans are collateralized. (McDonald 1999, 251) The increase in interest rate is thus used as a device to lower the investor's leverage.

Investors can individually control their risk with the type of properties they purchase. Investors who are concerned of their risk exposure should try to capture cash flowing properties instead of properties with expected appreciation. If an investor negotiates long payment period from the beginning and focused on maximizing the positive cash flow from the property, it mitigates the risk of running out of cash for loan payments.

High leverage can be especially harmful when the interest rates shift to uptrend. This may turn cash flow positive apartment to a cash flow negative apartment and when scaled in size, may put an investor though a bankruptcy. This can be protected against with fixed interest rates offered by banks. There are somewhat more costly and thus the incentive to take a floating rate exists. One should always conduct a scenario analysis when calculating cash flows with higher interest rates than expected, to see whether one can sustain unexpected interest rate hikes without defaulting.

Diversification is also an essential risk-reducing method for investors who have already scaled their business up. The diversification might range from buying different room-count apartments or from different neighbourhoods to buying different asset classes to balance the portfolio. Sometimes the demand fluctuates and one chamber apartments might go from high demand to over supplied and this may affect the cash flows as the price competition starts taking place. Meanwhile 2 and 3 chamber apartments could go

up in demand and an investor with diversified portfolio could even out this fluctuation. Same is true with fixed and fluctuating interest rates offered by banks. The investor can hedge part of the portfolio's interest rate risk by fixing some of the loans while letting the cheaper fluctuating rates go along the market rates.

Even if using these techniques, when a recession hits, a real estate investor will probably be taking losses in the value of the portfolio as the real estate will become one of the most illiquid asset classes. Hedging a real estate portfolio against recessions is found very difficult, gold is claimed to work as a hedge, but it is disputed among economists whether gold can be relied as a hedging instrument in this occasion. The only asset class offering protection against recession is highly liquid, cash like asset classes that do not correlate with economic cycles such as T-Bills (Armstrong 2019).

6 Tools for analysis

Most experienced investors use software based tools to simplify the analysis process. There are several free to use excel templates which can be used to conduct a quick analysis with the most used key statistics and supporting graphics. There are great number of tools to be employed for each problem. We take a look to a few tools which can be found online for real estate investing in Helsinki.

The analysis is time consuming process and an experienced investor can analyse multiple deals during one day. Thus, quicker methods than manually calculating each of the KPI's can easily save plenty of expensive time. Primary tools that can be used for a proper real estate analysis are usually tools for financial, comparative and market analysis. In this paper, few of the tools or databases are exhibited due to their free of charge access and easy usability. There are many more tools available in internet, some which may be more suitable of certain uses.

Sijoitusasunnot.com – a whole seller operating in Finnish market, offers easy to use Excel based analysis canvas (see appendix 1). With this tool, the investor can quickly go through the KPI's as well as gets a visual representation of the wealth building and leverage. It also has a risk scenario analysis tool which is very useful for investors who are concerned of increasing interest rates. An investor with can easily build a customized analysis tools with preferred calculations and just input individual numbers to the canvas

with basic excel knowledge. The canvas offered by sijoitusasunnot.com does not include a proper future cash flow analysis and that should be conducted after if the other KPI's from the canvas look acceptable.

For comparative analysis, the Finnish Ministry of Environment has published great amount of data from apartments sold in Helsinki in last half-year period. It has search filters and the data base consists of thousands of apartments. However it is lacking pictures and therefore the investor has to have a hunch of the grading and should use websites such as etuovi.com – one of the largest platform real estate, to further compare the deal with already existing offers, (appendix 1).

Suomirakentaa.fi overs tools for calculating costs for renovations. This is useful then forecasting future capital expenditure and researching current renovations on hand. It has a variety of different renovations that the used can choose from. (Appendix 1)

Handling these tools together with additional or preferred tools can help the process of analysing greatly. It is useful to learn to do the calculations by hand in case one encounters situations where time is too short for proper analysis and the decision has to be made on place. Handful of investors from ostanasuntoja.com mentioned that sometimes the deals have to be made very quickly without even seeing the apartment. This is a legitimate method if the seller is already known business partner and the numbers and descriptions are known to be reliable. In these occasions a quick hand-made analysis might play a role.

7 Conclusion

Real estate has been proven to be a great hedge against inflation as well as to generate steady streams of cash flow. For wealth building purposes, it is an excellent vehicle due to its fit being used with leverage. The risk accompanied with leveraging can be mitigated through careful analysis and purchasing of cash flow-positive assets, as well as using fixed interest rates and having liquid assets in portfolio, which do not correlate with economic cycles. Diversifying the portfolio with different sized apartment, different locations as well as whole different asset classes mitigates the risks related to certain types of real estate.

Helsinki as a market is prominent for value and growth seeking investors. The population is growing and increasing demand in housing creates potential for investors. From current 643 000 habitants, Helsinki is estimated to grow to 822 000 according to moderate estimation. With the scarce space of central locations and growing sub-urban areas, investors with many strategies can seek to use this growth to their benefit.

Investors interested in participating in the Finnish real estate markets, should consider whether the ownership of the assets should be personal or through a holding company. There are differences in taxation, but owning real estate in large quantities and in long term favours company ownership due to postponing of the tax payment and increased compounding effect.

To analyse the deals available in Helsinki, an investor has a list of public sources available for financial and comparative analysis. The Ministry of Environment offers a comprehensive database of realised sales of apartments in the last six months and sijoitusasunnot.com offers a great visual tool which calculates most of the interesting financial indicators and projections for investors after inputting the data.

From the data published by the Ministry of Environment we found that a single factor with most effect in price was location. The location was also increasingly important with larger apartments. While the spread in studio apartments between the most expensive area and the cheapest area was 253 667€, the same spread was 1 407 102 € with apartments which had four to five rooms. Whether the building has an elevator or not, found out to increase the prices from studio's average of 14 600€ to over 100 000€ with apartments having more than four rooms. Condition could only show meaningful results between apartments with good condition and apartments with moderate condition due to the lack of apartments sold in bad condition in Helsinki, reducing the renovation potential for price increasing purposes. Having good condition was driving the prices up in all of the apartment sizes. Where the apartment size sis did drive the price up, the data shows a U-curve where investors pay more per square for the smallest apartments as well as the largest apartments. Three room apartments for some reason were cheaper per square than the others. Energy certification as a single variable is likely to be a by-product of other price increasing variables such as age and thus should be evaluated critically on its own. Having a new building demonstrated to be positive price indicator but the highest average amounts were paid for the very old buildings.

For cash flow purposes, the apartments in the best locations in Helsinki are perhaps not as appealing as the ones away from the centre due to their high valuations. As rents do not keep up with the inflation as well as the price, it results in decreased CAP rates and cash on cash returns in central locations. Potential can also be found in areas, where the surrounding locations are priced higher without of sacrificing amenities.

When a potential deal in a prominent location is found, a proper analysis should be conducted by looking in to the main elements of the deal: details of the property, purchase details, financing details, income and expenses. A map of cash flows should be created to evaluate the whole lifespan of the investment. Only then NPV and IRR can be calculated from the cash flows to get the best indicators for investor to make the final decision.

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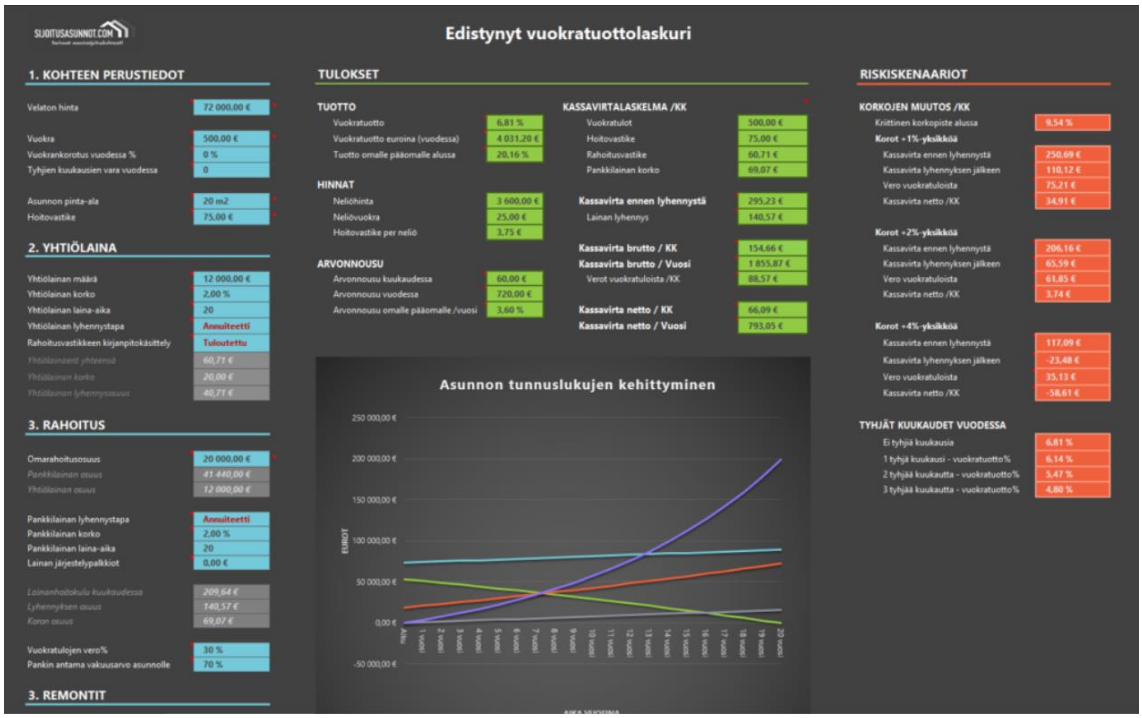
Appendix 1. Tools for analysis



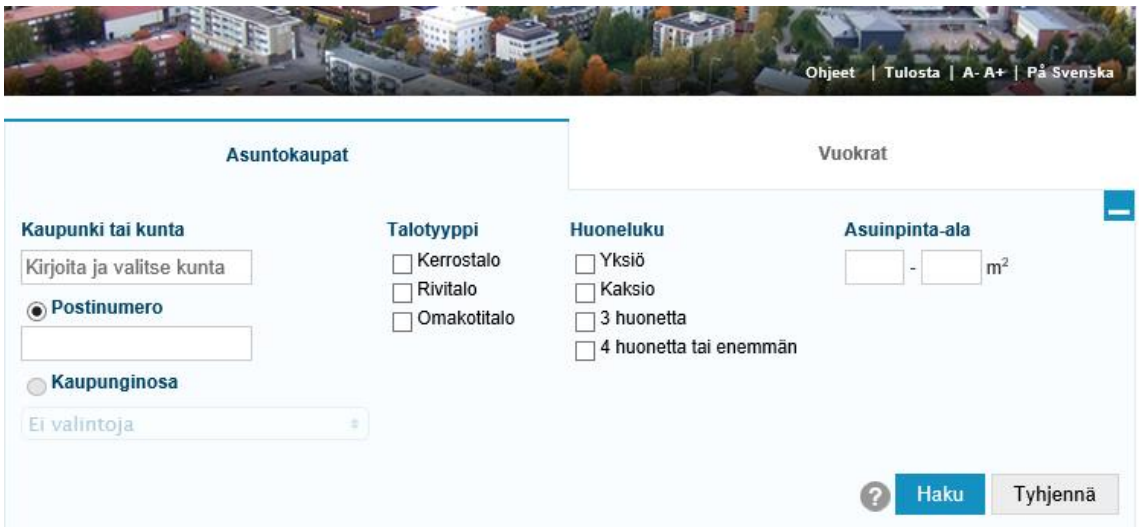
In the picture above is the advanced financial calculator offered by sijoitusasunnot.com for calculating profitability for buy and hold investing. In the blue are the fields where data is put in, the green cells then show the profitability in numbers while the graph shows the life cycle of the investment, leverage and wealth accumulated. On the right side are listed risk scenarios for increased interest rates.

Accessed at: https://sijoitusasunnot.com/uudistettu-vuokratuottolaskuri-lataa-ilmaiseksi/

Renovation calculator from suomirakentaa.fi

Accessed at: https://www.suomirakentaa.fi/kustannuslaskurit/

Ministry of the Environment - database for comparative analysis



In the picture above is the interface of the very useful database provided by Ministry of the Environment. It has a list of filters which further ease the investor's job for comparing the deal with similar sold deals.

Accessed at: http://asuntojen.hintatiedot.fi/haku/

Appendix 2. Comparative data analysis

The data set is uploaded from <http://asuntojen.hintatiedot.fi/haku/>

From the description of the apartments, only the room count is used. This is due to the input differences of the data from its providers. In apartments, where the room count was mentioned with range for example 2-3, the data is rounded up to 3. This was decided due to the average prices of 3 room apartments was closer to the sales price than 2 room apartments. This way the data could be compared in large quantities.

In the table below, is the data sample of 2806 apartments sold in Helsinki for the last six months (Ministry of the Environment 2019). The columns are

representing different room counts. colums from left to right: 1 room, 2 rooms, 3 rooms, 4-5rooms, 6-7 rooms. Top 5 most expensive areas for each column are marked green while the bottom 5 are red. The column with 6-7 rooms not coloured due to its small size.

Room count	1r	Room count	2r	Room count	3r	Room count	4-5r (Multiple Items)	Room count	6-7r (Multiple Items)
Row Labels	**Average of Price €**	**Row Labels**	**Average of Price €**	**Row Labels**	**Average of Price €**	**Row Labels**	**Average of Price €**	**Row Labels**	**Average of Price €**
Alppiharju	198 291,67	Alppiharju	251 666,67	Ala-malmi	197 000,00	Ala-malmi	274 000,00	Etelä-haaga	712 500,00
Alppila	198 274,27	Alppila	262 327,27	Alppiharju	332 333,33	Alppila	490 000,00	Kaivopuisto	2 365 000,00
Aurinkolahti	210 000,00	Arabianranta	303 500,00	Alppila	346 068,40	Arabianranta	524 421,50	Kamppi	1 655 000,00
Eira	301 000,00	Aurinkolahti	255 750,00	Arabia	305 000,00	Aurinkolahti	448 689,50	Kruununhaka	983 350,00
Etelä-haaga	178 100,62	Eira	354 000,00	Arabianranta	465 250,00	Eira	967 500,00	Meilahti	790 000,00
Etu-töölö	261 852,94	Eiranranta	825 000,00	Aurinkolahti	379 370,00	Eiranranta	1 490 000,00	Munkkiniemi	726 000,00
Haaga	130 000,00	Etelä-haaga	234 730,77	Eira	900 000,00	Etelä-haaga	444 750,00	Siltamäki	272 000,00
Hakaniemi	208 166,67	Etu-töölö	461 919,43	Eiranranta	815 000,00	Etu-töölö	801 076,47	Töölö	850 000,00
Harju	197 444,44	Haaga	203 666,67	Etelä-haaga	314 922,50	Haaga	319 000,00	**Average**	**1 057 978,57**
Heikinlaakso	120 000,00	Hakaniemi	333 114,50	Etu-töölö	541 310,00	Helsinki	519 000,00		
Hermanni	185 000,00	Harju	277 994,14	Hakaniemi	405 375,00	Hermanni	623 250,00		
Herttoniemenranta	184 000,00	Hermanni	265 388,73	Harju	365 000,00	Herttoniemenranta	513 000,00		
Herttoniemi	182 871,62	Herttoniemenranta	297 650,00	Heikinlaakso	181 666,67	Herttoniemi	383 136,25		
Hietalahti	330 000,00	Herttoniemi	241 750,72	Hermanni	407 333,33	Hietalahti	644 000,00		
Itäkeskus	145 000,00	Hietalahti	406 722,22	Herttoniemenranta	388 000,00	Ilmala	485 000,00		
Itä-pasila	170 000,00	Ilmala	310 000,00	Herttoniemi	335 700,00	Itäkeskus	277 500,00		
Jakomäki	110 000,00	Itäkeskus	163 862,50	Hietalahti	509 400,00	Itä-pakila	200 000,00		
Jätkäsaari	203 416,10	Itä-pakila	147 000,00	Itäkeskus	188 166,67	Jakomäki	200 000,00		
Kaartinkaupunki	182 000,00	Itä-pasila	222 000,00	Itä-pakila	200 000,00	Jätkäsaari	509 857,94		
Kaisaniemi	245 000,00	Jakomäki	121 500,00	Itä-pasila	273 437,50	Kaartinkaupunki	880 000,00		
Kalasatama	188 500,00	Jätkäsaari	288 708,55	Jakomäki	157 500,00	Kalasatama	907 500,00		
Kallahti	350 000,00	Kaartinkaupunki	476 250,00	Jätkäsaari	413 362,84	Kallio	490 598,00		
Kallio	204 049,36	Kalasatama	313 500,00	Kaartinkaupunki	872 000,00	Kamppi	651 000,00		
Kamppi	267 636,84	Kallahti	146 000,00	Kaisaniemi	615 000,00	Kannelmäki	227 500,00		
Kannelmäki	147 083,83	Kallio	276 240,13	Kaivopuisto	1 100 000,00	Katajanokka	1 535 102,00		
Katajanokka	247 474,13	Kamppi	393 266,84	Kallio	335 000,00	Keskusta	950 000,00		
Kivihaka	177 000,00	Kannelmäki	166 879,46	Kamppi	598 716,67	Kluuvi	820 000,00		
Kluuvi	286 500,00	Katajanokka	536 962,00	Kannelmäki	211 328,00	Konala	330 000,00		
Konala	143 500,00	Keski-töölö	435 000,00	Katajanokka	779 873,81	Kontula	150 750,00		
Kontula	112 000,33	Keskusta	318 000,00	Keski-töölö	395 000,00	Koskela	244 500,00		
Kruununhaka	249 400,00	Kivihaka	218 713,67	Kivihaka	302 600,00	Kruununhaka	923 119,56		
Kulosaari	193 666,67	Kivikko	175 000,00	Konala	170 200,00	Kulosaari	445 000,00		
Kumpula	175 500,00	Kluuvi	449 500,00	Konepaja	435 205,67	Kumpula	315 016,00		
Kuninkaantammi	171 100,00	Konala	152 000,00	Kontula	129 834,94	Kuninkaantammi	408 000,00		
Kurkimäki	156 000,00	Kontula	120 376,67	Koskela	178 333,33	Kuusisaari	523 000,00		
Käpylä	259 955,71	Koskela	157 581,20	Kruununhaka	637 669,23	Laajasalo	300 641,75		
Laajasalo	133 000,00	Kruununhaka	413 100,13	Kulosaari	384 513,17	Laakso	509 958,00		
Lassila	154 625,00	Kulosaari	277 942,50	Kuninkaantammi	316 422,22	Lauttasaari	561 999,00		
Lauttasaari	210 025,11	Kumpula	249 666,67	Kurkimäki	185 000,00	Länsi-pasila	575 000,00		
Lehtisaari	159 000,00	Kuninkaantammi	216 985,00	Kuusisaari	485 000,00	Malmi	248 000,00		
Länsi-pakila	126 000,00	Kurkimäki	170 666,67	Käpylä	306 000,00	Malminkartano	276 550,00		
Länsi-pasila	241 500,00	Käpylä	240 149,00	Laajasalo	214 045,90	Maunula	261 500,00		
Malmi	148 111,17	Laajasalo	171 593,43	Laakso	460 000,00	Meilahti	614 071,43		
Malminkartano	133 701,67	Laakso	236 000,00	Lassila	224 921,56	Mellunkylä	269 000,00		
Maunula	148 000,00	Lassila	195 166,67	Lauttasaari	435 542,27	Mellunmäki	189 000,00		
Meilahti	178 416,67	Latokartano	226 220,00	Länsi-pasila	361 833,33	Munkkiniemi	551 117,65		
Mellunkylä	155 500,00	Lauttasaari	307 405,86	Malmi	205 761,43	Munkkivuori	397 833,33		
Mellunmäki	96 333,33	Lehtisaari	221 333,33	Malminkartano	206 964,29	Myllypuro	245 000,00		
Merihaka	209 500,00	Länsi-pasila	269 500,00	Maunula	227 157,60	Oulunkylä	362 500,00		
Munkkiniemi	206 600,00	Malmi	175 000,00	Meilahti	397 922,50	Pajamäki	308 000,00		
Munkkisaari	219 875,00	Malminkartano	176 828,65	Mellunkylä	190 000,00	Pihlajamäki	178 000,00		
Munkkivuori	157 192,31	Maunula	192 357,14	Mellunmäki	165 610,30	Pihlajisto	199 000,00		
Myllypuro	131 500,00	Meilahti	276 102,63	Merihaka	358 000,00	Pikku-huopalahti	425 000,00		
Niemenmäki	164 000,00	Mellunkylä	168 642,86	Meri-rastila	171 000,00	Pitäjänmäki	244 000,00		
Näkinpuisto	232 000,00	Mellunmäki	124 617,08	Munkkiniemi	415 848,38	Pohjois-haaga	320 675,00		
Oulunkylä	147 069,25	Merihaka	260 333,33	Munkkivuori	288 608,33	Pukinmäki	231 333,33		
Pajamäki	139 000,00	Meri-rastila	147 000,00	Myllypuro	192 003,00	Punavuori	921 625,00		
Pasila	183 731,59	Munkkiniemi	318 029,34	Niemenmäki	240 666,67	Puotila	235 000,00		
Patola	134 000,00	Munkkisaari	419 319,60	Oulunkylä	261 502,75	Puotinharju	238 333,33		
Pihlajamäki	112 937,50	Munkkivuori	225 176,47	Pajamäki	268 000,00	Rastila	359 000,00		
Pihlajisto	108 437,50	Myllypuro	169 769,23	Pasila	286 072,45	Roihuvuori	328 600,00		
Pikku-huopalahti	208 415,00	Niemenmäki	250 375,00	Patola	190 000,00	Ruoholahti	750 000,00		
Pitäjänmäki	171 166,67	Oulunkylä	198 232,50	Pihlajamäki	171 500,00	Ruskeasuo	505 625,00		
Pohjois-haaga	146 125,00	Pajamäki	214 142,86	Pihlajisto	150 285,71	Siltamäki	187 000,00		
Pukinmäki	146 000,00	Pasila	234 344,40	Pikku-huopalahti	330 792,20	Siltasaari	700 000,00		
Punavuori	243 964,52	Patola	159 437,50	Pitäjänmäki	311 000,00	Suurmetsä	128 000,00		
Puotila	124 875,00	Pihlajamäki	151 650,89	Pohjois-haaga	218 307,69	Taka-töölö	683 227,27		
Puotinharju	123 214,29	Pihlajisto	137 781,00	Puistola	161 000,00	Tali	419 295,50		
Roihuvuori	151 500,00	Pikku-huopalahti	233 346,50	Pukinmäki	206 000,00	Tammisalo	338 000,00		
Ruskeasuo	192 500,00	Pitäjänmäki	205 916,67	Punavuori	584 117,65	Tapanila	356 625,00		
Siltamäki	134 000,00	Pohjois-haaga	205 371,17	Puotila	209 679,50	Tapulikaupunki	165 000,00		
Siltasaari	190 000,00	Puistola	161 666,67	Puotinharju	178 636,36	Toukola	447 403,00		
Sörnäinen	211 686,36	Pukinmäki	167 679,44	Rastila	166 000,00	Töölö	669 500,00		
Taka-töölö	225 495,19	Punavuori	393 474,93	Reimarla	237 000,00	Ullanlinna	912 333,33		
Tali	151 996,00	Puotila	164 144,69	Roihuvuori	247 263,16	Vallila	580 500,00		
Tapanila	135 000,00	Puotinharju	160 812,50	Ruoholahti	415 572,00	Vanhankaupunginkoski	430 000,00		
Tapaninkylä	145 000,00	Rastila	266 000,00	Ruskeasuo	364 333,33	Viikinmäki	452 666,67		
Tapaninvainio	114 000,00	Roihuvuori	193 400,00	Savela	210 000,00	Viikki	313 000,00		
Tapulikaupunki	111 333,33	Ruoholahti	352 251,00	Siltamäki	153 666,67	Vuosaari	218 666,67		
Torkkelinmäki	255 833,33	Ruskeasuo	281 051,11	Siltasaari	785 000,00	**Average**	**545 879,53**		
Toukola	202 000,00	Savela	158 987,50	Suurmetsä	148 083,33				
Töölö	213 046,15	Siltamäki	114 333,33	Suutarila	188 000,00				
Ullanlinna	278 235,29	Siltasaari	354 750,00	Sörnäinen	381 666,67				
Vallila	204 972,55	Suurmetsä	106 000,00	Taka-töölö	495 648,68				
Vartiokylä	131 500,00	Suutarila	152 000,00	Tali	442 333,33				
Viikki	183 666,67	Sörnäinen	253 833,33	Tapanila	272 000,00				
Vuosaari	131 300,00	Taka-töölö	326 736,11	Tapaninvainio	225 666,67				
Average	**199 376,49**	Tali	284 517,33	Tapulikaupunki	146 600,00				
		Tapanila	172 452,62	Toukola	296 500,00				
		Tapaninkylä	171 707,00	Töölö	539 316,33				
		Tapaninvainio	180 666,67	Ullanlinna	633 228,57				
		Tapulikaupunki	162 000,00	Vallila	312 285,71				
		Torkkelinmäki	302 000,00	Vanhankaupunginkoski	353 750,00				
		Toukola	226 800,00	Vanha-vuosaari	191 000,00				
		Töölö	346 610,10	Vartiokylä	231 333,33				
		Ullanlinna	414 338,89	Veräjämäki	230 500,00				
		Vallila	271 750,00	Vesala	165 500,00				
		Vanhakaupunki	240 000,00	Viikinmäki	316 900,67				
		Vanhankaupunginkoski	285 166,67	Viikki	287 111,11				
		Vartiokylä	183 000,00	Vuosaari	204 020,83				
		Veräjälaakso	193 000,00	Yliskylä	197 500,00				
		Veräjämäki	198 000,00	Ylä-malmi	246 500,00				
		Vesala	136 750,00	**Average**	**345 366,36**				
		Viikinmäki	240 698,33						
		Viikki	253 599,00						
		Vuosaari	165 642,86						
		Yliskylä	206 666,67						
		Average	**263 744,42**						