

# Dynamics of the Commercial Property Markets in Finland

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**Key words:** commercial property market, rent determination, regression analysis, retail market, office market, submarkets,

## SUMMARY

The paper discusses the characteristics, which affect the determination of rents of commercial properties. Statistical analyses of the rental data produced models, which explained how the rents are determined in the major Finnish cities. The results of the models show different effects for separate variables. On the basis of the  $R^2$  indicators the best models are related to the retail and office markets in the Helsinki metropolitan region, whereas in the other cities the explanatory powers of the models were relatively low. The paper also discusses a new project, which covers the effects of the international investors on the commercial property markets in Finland. International investors have been very active in Finland during the past few years and that has changed the Finnish commercial property markets dramatically. The new project includes also the investigation of office and retail submarkets in the Helsinki metropolitan region and aims to identify potential new submarkets.

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## 1. INTRODUCTION

This paper discusses the characteristics that influences commercial property rents in Finland. Knowledge of the determinants that affect rents and how they affect rents is an important part of market information on a relatively low-information market - as real estate markets – and therefore all new information is valid. In addition rent determination on commercial property markets has not been studied earlier in Finland, whereas internationally there are several studies. In Finnish housing market the tradition for research is more extensive and the database available for research is more extensive. Therefore rent and price determination has been studied more in the housing markets. The research data for this research was collected by Institute of Real Estate Economics in Finland and is used for research purposes for the first time in this research.

### 1.1 Office Properties

Commercial properties have many characteristics, which influence on the rent received from the property. Such characteristics as location, size, age, qualitative attributes... are important when determining the rent of a property. International research is quite comprehensive concerning the different characteristics of commercial properties. Ball, Lizieri & MacGregor (1998) talk about accessibility and divide it into two parts: special and general accessibility. The advantages of special accessibility are normally agglomeration economies, concerning firms operations and relationships to other firms. In other words, when firms are concentrated into certain areas, the agglomeration advantages occur. General accessibility on the other hand explains the movement costs (physical distance and journey time) to a particular location.

The building characteristics and their effect on office rents have internationally been studied extensively (Clapp, 1980; Cannaday & Kang, 1984; Brennan, Cannaday & Coldwell, 1984; Glascock, Jahanian & Sirmans, 1990; Mills, 1992; Colwell, Munneke & Trefzger, 1998; Dunse & Jones, 1998). The most common characteristics that have been found to have statistically significant impact on rents or values are: age, location, size, condition and in some studies the conditions in the rental agreement. Mostly the findings were parallel, but for the location or more precisely the distance to the centre of the city, the findings varied. From the Chicago region Colwell, Munneke & Trefzger (1998) didn't find statistical significance between the distance to the center of the city and the values of offices. On the other hand, they found out a premium for offices located in employment centers. Similar findings were introduced by Ball et al. (1998) also, when they stated that several reasons reduce the importance of central location. The main reasons for this are the increasing expenses for the land in central locations, but also the development of information technology reduces the need to be located in a central location. However Ball et.al (1998) admit that there are several advan-

tages in a central location. One of the most important of the advantages is the easily achieved face-to-face communication, which in Atlanta region (Bollinger, Ihlanfeldt & Bowes, 1998) was found to be very important factor for firms, when deciding location for their office.

## 1.2 Retail Properties

The characteristics affecting retail rents have also been studied extensively by international researchers. Research has been concentrated very much on shopping centres and on the characteristics that influence the rents in the shopping centers. Therefore in this part of the literature review the focus will also be on the shopping centers. Size of the sales facility has been found to be an important determinant to rents. The correlation between size and the rent per square meter has been found to be negative (Wheaton, 2000). Also the functionality of the sales facility and the amount of utility space of the facility are important factors when considering the characteristics of the sales facility itself. Tay et.al (1999) also state in their research that firms operating in bigger sales facilities pay smaller rents per square meter as their negotiating position is better due to their bigger size.

The locations of the sales facilities inside the shopping centre as well as the location of the shopping centre itself are important rent determinants to be studied. In Hong Kong central location of the shopping centre or a good location considering the accessibility of the shopping centre has been found to be a significant factor to explain for the rents asked in the shopping centre. Also the location in the shopping centre can be considered important, as the facilities located near major pedestrian streams are the most valuable facilities in shopping centers. In addition to the location in the centre, the line of business influences how the location inside the centre affects on the rent. (Tay, Lau & Leung, 1999)

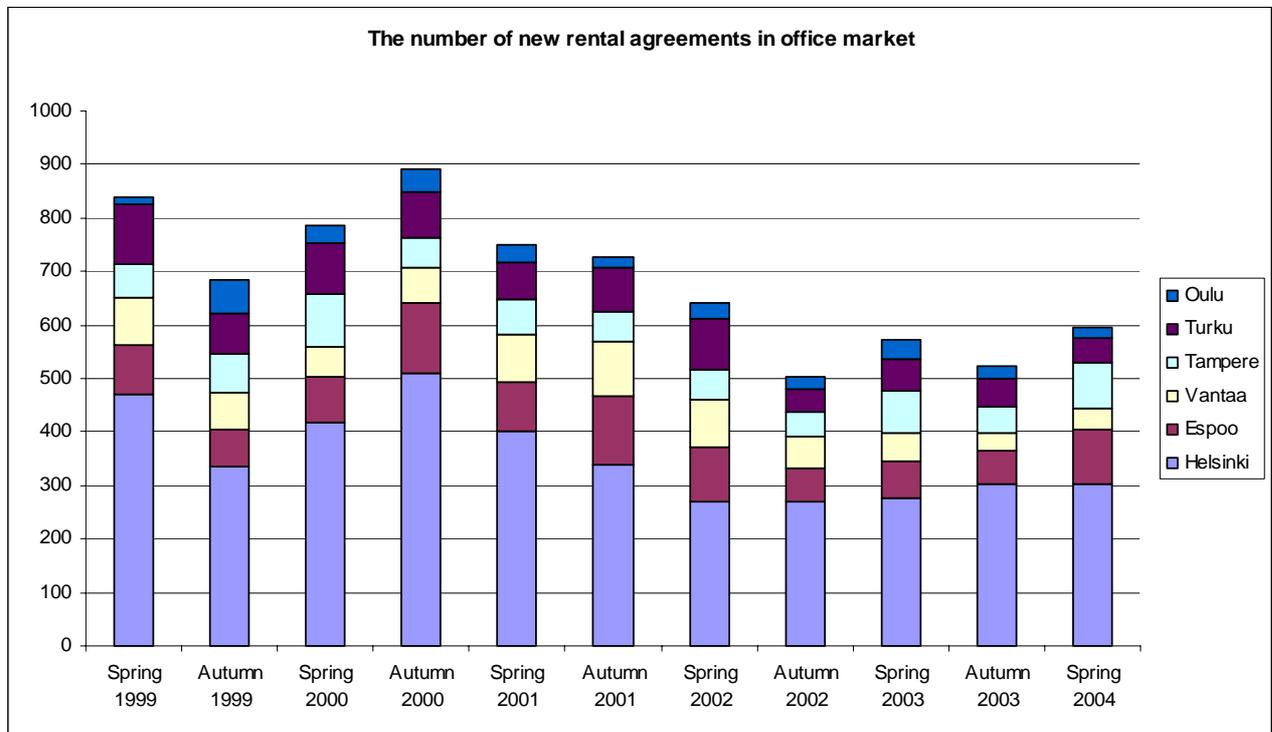
As well as the line of business of firms in the shopping centre, the type of tenant is an important factor when determining rents. In Hong Kong anchor tenants, who often are in the largest sales facilities and therefore pay higher rents according to Tay et.al (1999), because they have greater need for better sales facilities. On contrary Wheaton (2000) stated that anchor tenants pay smaller rents/m<sup>2</sup> as they bring customers to shopping centre. Ball et.al (1998) note also that shopping centers have one or several anchor tenants, which bring customers to shopping centers and therefore improve the operations of other shops in the centre.

This paper is organized into five sections. The second section discusses the data and the research methods used. After second section, the results of the empirical study are presented, then conclusions made and final section discusses about the future research, which has already been started with a bigger research project, which contains several research objectives.

## 2. DATA & METHODS

The data used in this research is from the Institute of Real Estate Research (KTI). They have collected annual cross-section data since 1990 about rents of Finnish office-, retail- and industrial properties. In this research, the data was used from six major Finnish cities: Helsinki (the capital of Finland), Espoo, Vantaa, Turku, Tampere and Oulu. These cities are the main

growth centers in Finland and the commercial property markets are centered in these cities, especially in the Helsinki metropolitan region (Helsinki, Espoo & Vantaa). The data consists of new rental agreements between spring 1999 – spring 2004 and includes a total of 25 561 rental agreements, from which 13 694 were from the Helsinki metropolitan region. This is 54 % of the whole data and therefore it can be said that Helsinki metropolitan region is clearly the most important submarket in Finnish commercial property markets. (Figure1)



**Figure 1.** The annual number of new rental agreements in Helsinki

The data included information about the point of time (spring/autumn & year) of the rental agreement, city, use of the subject, area, rent/m<sup>2</sup> and postal code. As extra information the distance to the centre of the city was calculated using GIS. Dummy-variables were also used to give more information. Whether or not the subject property was renovated, postal area and the time period were chosen as dummy-variables. Postal code-dummy was created using the average values of the rents in each city, these average rents were divided into four sections and the dummies were chosen based on that classification. The time-dummy had 11 steps, every spring or autumn had it's own step.

The research method used for data analysis in this research is regression analysis. From the two basic applications of regression analysis, the log-linear method has been suggested by the international literature (Slade, 2000; Brennan, Cannaday & Colwell, 1984; Cannaday & Kang, 1984; Clapp, 1980; Sivitanidou, 1995; Colwell, Munneke & Trefzger, 1998).

### 3. RESULTS

The basic form of the model used in this research, is as follows:

$$Rent/m^2 = e^a * distance^b * area^c * e^{d*Postal4} * e^{e*Postal3} * e^{f*Postal2} * e^g * Spring1999 * e^h * Autumn1999 * e^i * Spring2000 * e^j * Autumn2000 * e^k * Spring2001 * e^l * Autumn2001 * e^m * Spring2002 * e^n * Autumn2002 * e^o * Spring2003 * e^p * Autumn2003 * e^q * Spring2004$$

- $Rent/m^2$  = the rent per square meter for the subject property (€/m<sup>2</sup>/month)  
 $e$  = the base number of natural logarithm ( $e \approx 2,718$ )  
 $a$  = the constant term of the coefficient of regression  
 $b$  &  $c$  = the regression coefficients of the continuous variables'  
 $d...q$  = the regression coefficients of class variables.

Continuous variables:

- distance* = the numeric value represents the straight distance to the centre of the town (Helsinki, Vantaa, Turku, Tampere & Oulu)  
*area* = the area of the subject property in square meters

Class variables:

- Postal* = Represents the location of the subject property using the postal code.  
*Time period* = The time period when the agreement has been made.  
*Itäkeskus* = Whether the property is located in Itäkeskus, a big suburb in Helsinki, where the biggest shopping centre in the Nordic Countries is located  
*Renovation* = Whether renovation has been made in the property

In this paper only results from the models of Helsinki metropolitan region are shown.

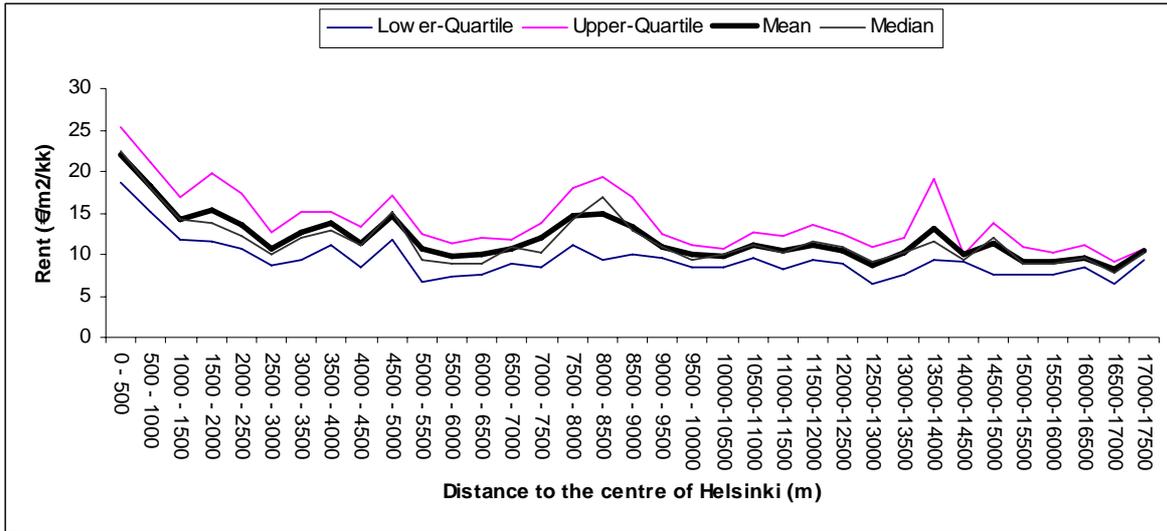
Variable	Offices	Retail	Industrial
e	$e^{2,728}$	$e^{4,161}$	$e^{1,956}$
Distance	$x^{-0,086}$	$x^{-0,189}$	$x^{-0,071}$
Area	$x^{0,011}$	$x^{-0,107}$	$x^{0,026}$
Postal 2	$e^{1 * 0,202}$	$e^{1 * 0,189}$	$e^{1 * 0,042}$
Postal 3	$e^{1 * 0,326}$	$e^{1 * 0,302}$	$e^{1 * 0,076}$
Postal 4	$e^{1 * 0,560}$	$e^{1 * 0,822}$	$e^{1 * 0,287}$
Autumn 1999	-	$e^{1 * 0,086}$	$e^{1 * -0,068}$
Spring 2000	$e^{1 * 0,049}$	-	-
Autumn 2000	$e^{1 * 0,120}$	-	-
Spring 2001	$e^{1 * 0,161}$	$e^{1 * 0,076}$	-
Autumn 2001	$e^{1 * 0,235}$	-	$e^{1 * 0,159}$
Spring 2002	$e^{1 * 0,236}$	$e^{1 * 0,098}$	$e^{1 * 0,149}$
Autumn 2002	$e^{1 * 0,198}$	$e^{1 * 0,156}$	$e^{1 * 0,200}$
Spring 2003	$e^{1 * 0,183}$	$e^{1 * 0,140}$	$e^{1 * 0,138}$
Autumn 2003	$e^{1 * 0,149}$	-	$e^{1 * 0,183}$

Spring 2004	$e^{1*0,196}$	$e^{1*0,179}$	$e^{1*0,144}$
Itäkeskus-dummy	-	$e^{1*0,815}$	-
Renovation-dummy	-	$e^{1*0,091}$	-
R <sup>2</sup>	56,5	54,5	20,0
Residual standard deviation	0,279	0,488	0,393
Variation coefficient	26,90 %	65,00 %	37,90 %

**Table 1.** The regression coefficients of variables in Helsinki

As can be seen from the Table 1 the coefficients of determination (R<sup>2</sup>) in the models vary very much. The office and retail models in Helsinki metropolitan area have good coefficients for R<sup>2</sup>, but in the industrial markets the model has quite poor explaining power (20,0). The best R<sup>2</sup> values were from the model of Helsinki's office market. On the other hand the residual standard deviation and variation coefficient have higher values in the retail model than in the office or industrial models. This is probably due to the high variation in the rents in retail markets. In the office markets the lower quartile of the rents is 9,68 €/m<sup>2</sup>/month and the upper quartile is 18,50 €/m<sup>2</sup>/month (same numbers from the industrial market are 5,05 €/m<sup>2</sup>/month and 8,20 €/m<sup>2</sup>/month), whereas in the retail markets the lower quartile is 10,10 €/m<sup>2</sup>/month, but the upper quartile is 26,47 €/m<sup>2</sup>/month. This indicates that the rents in the retail markets have a very much higher peak than the rents in the office or industrial markets. The same applies to other cities as well.

One quite surprising finding is in the distance variable. In some markets the variable was not seen as statistically significant (Espoo retail, Tampere industrial, Turku industrial and Oulu retail). Also the area variable had some surprising results, as the variable got positive coefficients (Helsinki office, Espoo office & industrial, Vantaa industrial, Helsinki metropolitan area office & industrial). As can be seen the positive coefficients are from office and industrial markets. The positive coefficients are small (under 0,0xx) and therefore indicate that the smallest properties are not the most expensive ones measured by the rent/m<sup>2</sup> in office and industrial markets, whereas in the retail market the most expensive rents/m<sup>2</sup> are from the smallest premises. The importance of the biggest shopping centre in the Nordic countries – Itäkeskus in Helsinki – can be seen from the dummy variable in the model of Helsinki metropolitan area. The variable's coefficient is 0,554 and indicates that the shopping centre is very important part of the areas retail market. In fact the shopping centre has as high individual rents/m<sup>2</sup> as there are in the downtown of Helsinki.



**Figure 2.** The office rents in Helsinki metropolitan area

The Figure 2 & Figure 3 show how the rents have been distributed in the Helsinki metropolitan area. The x-axes of the tables are 500-meter sectors from the centre of Helsinki. This means that for example the third sector has all rental agreements that are in 1000 – 1500 meter radius from the centre of Helsinki. From the rents there is presented mean, median, lower quartile and upper quartile. From the Figure 2 can be seen that the centre of Helsinki is the most expensive office area in the Helsinki metropolitan region, but there are areas, which come close to the rental level in downtown Helsinki. One such area can be seen in the region of 7500 – 8500 meters, where information technology cluster is centered in Helsinki metropolitan area. Helsinki University of Technology, the Technical Research Centre of Finland and major information technology companies led by Nokia are located in the area. This area’s upper-quartile comes quite close to the level of downtown Helsinki. It must be remembered that the Figure 2 shows only means and quartiles for the whole area and therefore specific smaller areas don’t stand out clearly, because there are also cheaper areas at the same distance from the centre of Helsinki. A similar area where the rental level rises from the surrounding area is the region of 13 500 meters, where the rapidly growing area of the Helsinki airport region is located.

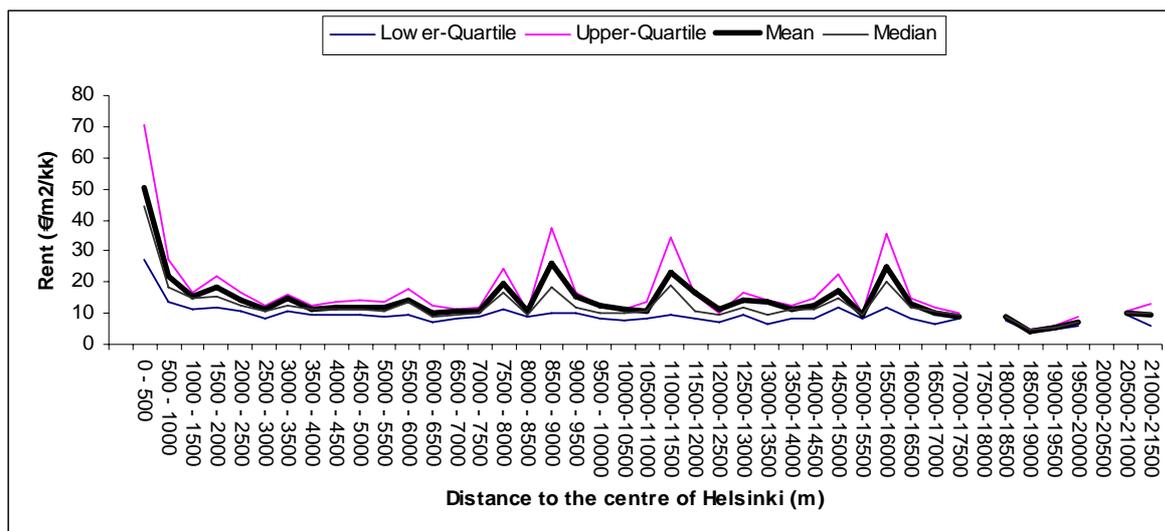


Figure 3. The retail rents in Helsinki metropolitan area

The Figure 3 shows the spread of retail rents in the Helsinki metropolitan region. The scale of the y-axes (rent) is much bigger and therefore the drop when going outside of the centre is dramatic. Figure 3 differs from the Figure 2 a lot, as there are more peaks in the Figure 3. These peaks are in a ring shaped area of 7 500 meters, 8 500 meters, 11 000 meters and 15 500 meters. In the 7500 meter region the highest rents are in the Tapiola postal code area in Espoo. In the 8 500 meter region the highest rents are concentrated in the Itäkeskus region, where is located the biggest shopping centre in the Nordic countries and it has some as high single rents as in the centre of Helsinki. In the 11 000 meter region the highest rents are located in the Myyrmäki suburb in Vantaa and the last peak in the region of 15 500 meters has rents from the Espoonlahti postal code area. Myyrmäki and Espoonlahti are also big and rapidly growing suburbs near good transportation routes and therefore they are important locations for retail properties.

#### 4. CONCLUSIONS

This research focused on the determinants of commercial property rents. The major parameters being investigated were the distance to city centre, location, property area and the time period when the agreement has been made. One of the important parameters found in this study was the location of the property, especially relative to the city centre. In Finland the Helsinki metropolitan area is by far the most important commercial property market, as it covers about 54 % of the whole rental data collected by the Institute of Real Estate Economics in Finland (KTI). In this area the importance of the downtown Helsinki in the office and retail markets is shown by Figures 2 and 3. However, there are also new submarkets that are growing outside of downtown Helsinki. In office markets the submarket development has not been as evident as in the retail markets, where new important submarkets have been evolving in bigger suburbs. This is exemplified by the expansion of new shopping centers, which are located near the major traffic lanes. In this development the downtown Helsinki has faced the

main competition from the shopping centres. Excluding the new Kamppi shopping centre in the downtown Helsinki most of the new retail investments are made in the suburban areas. Similar development has been going on in the office sector. Many recent office investments have been made in office parks locating outside the downtown Helsinki.

## **5. FURTHER RESEARCH**

The development of new submarkets in office and retail markets of Helsinki metropolitan area has much to study. In the research above there were only some variables that could explain the variation in rents. Therefore there exist a lot of potential for further research in this field. This potential will be faced with a new research project, which has as one research objective the development of submarkets in the office and retail markets of Helsinki metropolitan region. In this new research the aim is to find major submarkets in the region and to identify reasons why these submarkets have become that important. Also new potential submarkets will be studied in order to identify where new major submarkets may born. After the research on the metropolitan area level, the research will be taken into more detailed level, where individual submarkets will be analyzed and for some submarkets case studies will be made. In these case studies very specific research will be made, as individual shopping centers or office parks will be analyzed. In this research the data used will be same as used in the previous research. The only difference is that in this research additional data, which includes spatial information of Helsinki metropolitan area on buildings, demographics, traffic and standard industrial classification will be used. With that data it is possible to get more information about the submarkets and therefore more variables for the statistical analysis of the data.

The project in which the new research will be made is based on the major changes in Finnish commercial property markets. Finnish real estate sector has experienced major changes in recent years as international investors have arrived to Finnish markets during last years. These changes are the core for the new research project in the Institute of Real Estate Studies in Helsinki University of Technology. The project is called Dynamics of Commercial Property Markets and it is implemented in co-operation with 15 major Finnish real estate companies and Tekes – Finnish Funding Agency for Technology and Innovation.

The research project has three major research objectives:

1. The long term effects of international investors on Finnish commercial property markets
2. How Finnish commercial property markets have been divided into submarkets? What has caused this development?  
Are the traditional valuation methods up-to-date in the present market situation?

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