

Conversion of municipal rental units into cooperatively owned dwellings

An empirical study of which factors that affect the price and the conversion decision¹

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Abstract

The objective of this thesis is to investigate which factors that determine the acquisition price per square meter for rental properties, when converting a municipally owned rental property into cooperatively owned apartments, and on the tenant's decision to go through a conversion. We arrive at the conclusion that there are statistically significant indications that variables as rent per square meter, the tenure type leasehold and the share of vacant apartments in the property to be converted affects the price. Further we find it difficult to determine what impacts the conversion decision but we see that the acquisition price and household size have a significant influence over the tenants' choice of accepting an offer to convert the property or not.

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Introduction

Since the 1990s, both private and municipal owners of multifamily properties in Sweden have divested a large part of their property portfolios to the properties' tenants through housing cooperatives. During the process the rental units are converted into cooperatively owned dwellings and one of the main reasons for the large increase of conversions is the rental control system, which limits the rent levels and keep the actual rents below the market level in attractive areas.

Another factor that has an impact on the sharp rise in the number of conversions is the large increase in housing prices. Between 1995 and 2010 Swedish housing prices have increased by 144 percent in real terms and during the same time period, real apartment rents increased by merely 13 percent (Englund, 2011).

The cap on rents¹ combined with the price increases in the open housing market create latent overvalues in attractive areas, which makes it possible to go through a conversion in a situation where both the tenants and the property owners find economic incentives large enough to start the process. By divesting the rental property to a cooperative the property owner can benefit from the positive price discrepancy between the price of a property with cooperatively owned dwellings² and the value of the rental property, which is limited due to the rent cap. Further, the rent control system creates a shift in the total Swedish housing stock not only through conversions but also due to fewer newly built rental units since it becomes less attractive to construct new rental properties than cooperatively owned units when comparing present values of the investment.

The Act of Rent Control was introduced in Sweden in 1942. Before then, public-sector involvement in housing was limited even though the Swedish state began focusing on municipal housing companies as early as 1935. Back then the municipal housing companies owned only approximately four percent of the total housing stock. After the World War II the Social Democratic government defined the role of the municipal housing companies, which is still relevant today. The intention was to abolish the housing shortage, eliminate overcrowding and raise the low standards in the existing housing stock and the political aim was to keep housing costs within reasonable limits. The municipal housing companies were also seen as means to

¹ Deriving from the rent control system, where a cap is put on rents according to the “principle of user value”, which defines the benchmark rent level against municipality owned rental apartments

² Cooperatively owned apartments are traded on the open market where the price is determined by demand and supply

secure new construction, keep rent levels down and to stabilize housing management, and in the 1960s they began functioning as price-setters in the rental market (Teeland & Siksiö, 1994).

The issue of converting municipally owned rental properties into cooperative housing units is subject to political decisions and agendas where, traditionally, the matter is dividing the political arena between the Social Democratic and the liberal-conservative majorities. In the 1990s, a wave of privatization commenced where a transfer of ownership from the municipal housing companies to the sitting tenants was encouraged by the national government. This initiative was the outcome of the ideological shift with the new liberal-conservative government, who argued for greater economic efficiency and more individual responsibility, and the booming housing market of the 1980s. By divesting parts of the public housing stock the conversions would supposedly benefit the buildings through better maintenance, the individual tenants by an increased responsibility and influential power and the local authorities by obtaining capital and the nation since the rate of saving would increase (Teeland & Siksiö, 1994).

In 2002, the Social Democratic government introduced a legislation (Swe: stopplagen), which aimed at preventing the municipal housing companies from divesting the public housing stock. The legislation stated that the municipal property owners needed to be granted permission by the County Administrative Board (Swe: Länsstyrelsen) in order to divest any properties and the sale was only approved if the area where the property was located had a proportion of rental apartments that exceeded a certain area-specific limit (Swedish Parliament, 2006). The aim of the legislation was to preserve the rental tenancy in order to provide housing for the whole population irrespective of level of income, and to be sure that enough rental properties were located in an area to be able to calculate a market value based on previous transactions (Swe: ortspris), which is used when pricing rental properties. The legislation was terminated on July 1, 2007 by the liberal-conservative government that came to power again in 2006. Since then, the number of conversions from municipal rental housing into cooperatively owned dwellings in the Stockholm area has increased sharply and today, conversions are neither made in the inner city nor in several of the inner suburbs due to political decisions and a saturated market.

Until recently, the conversions have primarily been a Stockholm phenomenon due to the exceptionally large price increases in the open housing market compared to other areas in Sweden. Since 1990, approximately 75 percent of all conversions has taken place in the Stockholm area but the conversions are increasingly common in other metropolitan areas such as Göteborg, Malmö and Helsingborg as well (Boverket, 2010).

Since the conversions from rental properties into cooperatively owned dwellings is an interesting and highly current issue that is affected by many regulations and political decisions, we have chosen the conversion process as the main focus area for our thesis. We will study the process in two dimensions where we aim to investigate which factors that affect or explain the pricing of rental properties in our first model and which variables that have an impact on the decision to go through a conversion in the second. The data we use for our analysis consist of 128 observations, comprised by data regarding municipally owned multi-family rental properties offered to the sitting tenants between 2009 and 2011, and is collected from Stockholm Stadshus AB which is the parent company of the four municipal housing companies in Stockholm.

In the first model, we find statistically significant results that indicate that factors as the condition of the property, type of tenure and the proportion of vacant apartments in the building each affect the acquisition price per square meter. The second model does not report as statistically strong results as the first, where only price per square meter and household size seem to have an impact on the decision to accept a conversion offer. These results can serve as valuable advice for actors in the Swedish conversion market. It will also be a contribution in terms of additional understanding for the underlying process when converting a rental property into cooperatively owned dwellings.

This paper is outlined as follows. In the first section, we describe the background and the mechanisms in the market for rental properties. The next section describes the methodology and data used in the study and this is followed by a results and discussion section. Finally, we recapitulate our findings in a section for conclusions and suggestions for further research.

Background

The market for rental housing

Regional differences are very apparent in the housing market in Sweden and these differences are most distinct when comparing the large city regions, especially the Stockholm area, with the rest of the country. For example, the housing prices differ substantially between urban and rural areas.

The ownership of multi-family properties is split between the municipal sector (Swe: allmännyttan), private landlords and cooperatively owned associations. Currently, approximately 47 percent of the multi-family housing stock in Stockholm is made up by rental apartments, implying that the majority are cooperatively owned apartments. This can be compared with year 2002 when approximately 60 percent of all apartments were rentals. In the inner city, only 36 percent of the apartments are rental dwellings and in some areas the proportion is even lower.

Hence, the housing stock in Stockholm is moving towards fewer rented apartments and more owned by the housing cooperatives (USKAB, 2011).

The market for cooperative housing

Apartment prices have historically been more volatile than house prices in Sweden in general and in Stockholm in particular. One explanation is the higher rate of turnover on the secondary market compared to single-family units (Catella, 2010).

Cooperatively owned apartments represent some 30 percent of the total number of multi-family units in Sweden. In Stockholm, the correspondent figures in 2010 show that apartments owned by housing cooperatives comprises 53 percent of the total multi-family housing stock compared to 40 percent in 2002, see Table 1 in appendix (SCB, 2011).

The ratio of apartments to total housing stock in Sweden has been constant for the past 20 years while the number of cooperatively owned apartments has grown by 40 percent compared to a diminutive three percent growth in the number of rental apartments during the same time. The driving force behind this asymmetry is the Swedish system of rent control (Catella, 2010). The high rate of conversions from rental apartments into cooperatively owned units is one reason to why the market for cooperative housing is booming, partly since the process makes more people active in the open housing market (Teeland & Siksiö, 1994).

On a year-over-year basis, Swedish apartment prices have been increasing steadily since 2001, with only seven months of negative growth (Mäklarstatistik, 2011). On the back of the financial market turmoil in the second half of 2008 apartment prices fell some 13 percent by the end of the year. As the economy and employment outlook improved during the course of 2009 so did apartment prices and in 2009 the previous price peak was surpassed and the average per square meter prices of Swedish apartments moved beyond SEK 20,000 for the first time (Catella, 2010). Thus, the financial crisis in 2008 and onwards have not had the negative impact on the market as predicted, mainly due to the interest rate decreases and other fiscal policies the Swedish state applied in order to stimulate the economy.

The rent control system

In Sweden, the rent levels have been regulated since 1942 and the rent control system is based on the “principle of user value” (Swe: bruksvärdesprincipen). Rents are supposed to be reasonable and match the rent for comparable apartments in municipal rental houses, which functions as benchmarks in the area. The benchmark rent should consider and include factors as size, condition and planning of the apartment (Lantmäteriet & Mäklarsamfundet, 2004).

The original purpose of the rent control system was that it would protect the sitting tenants and lead to market rent levels when the market was balanced, and avoid unreasonable high rent increases when there is an imbalance between supply and demand but it has endured much criticism for its application since the system does not include neither the market nor the tenants' preferences (Ellingsen & Englund, 2003). The factors that are attributable to the location of the property or apartment are not included in the rent levels. Instead, the current rent structure is based on the apartments' operating costs distributed on the apartments' age, condition and size (Lantmäteriet & Mäklarsamfundet, 2004). This implies that rents in attractive areas are systematically underpriced which lead to an undervaluation of such apartments and properties.

The rent control system thus implies that the current rent levels takes very little into account in which city or area the apartment or rental property is located, and also of the outlook of the housing market beyond the rental market.

Implications of the rent control system

Owning a rental property is generally seen as an investment with stable returns since the rent control system implies that the investor is provided with steady cash flows, as the rent levels are not adjusted for neither business cycles nor changes in demand. The rent control does also create a transparency regarding costs and revenues, which entails predictable cash flows (Svenska Bostadsfonden, 2011).

However, the rent control system and the rent structure also means that the regulated rents strictly limit the returns the real estate or housing companies can receive when building new rental properties. This leads to a decreased number of newly constructed rental units where property companies and investors instead choose to build properties with cooperatively owned apartments in order to maximize the return of the investment.

The rent control system also limits the income the property generates and hence limits the value the property has on the transaction market. Due to this fact, both the property owner and a housing cooperative will make a substantial profit by divesting the property to the association to an acquisitions price that lies between the market value on rental properties and cooperatively owned properties (Srejber, 2001).

In connection with the transaction, an overvalue³ is created and this comprises the profit which the property owner and the association split between them in a conversion process. The property owner realize its share of the overvalue as soon as the transaction takes place, but the individual

³ Defined as the difference between the market value for a property with tenant-owned apartments and the market value for a rental property

tenants realize it only when they sell their apartment on the open market for tenancy-owned dwellings. Due to the creation of the overvalue the majority of the tenants does not need a down payment in order to be able to buy out the apartments since the apartment is worth more than the mortgage size, even if the mortgage is set as 100 percent of the apartment's value. This often simplifies the conversion process (Spångberg, 2011).

Thus, the principle of user value contributes to that it in most cases is more profitable for a property owner to convert the rental apartments into cooperatively owned dwellings than to divest the property to another investor and continue managing the property with rental tenure.

The regulation also brings the consequence that the construction of rental apartments is held back in many areas even though it exists a large demand, which may lead to an inhibited growth in the long-run. This is especially apparent in Stockholm in general, and the inner city of Stockholm in particular, where demand exceeds supply (Srejber, 2001).

Besides causing conversion of rental buildings into housing cooperatives, the rent control system also brings many negative effects into the market. For example, it causes long queues for rental apartments in attractive areas; discouragement of renovation in rental apartments; an expensive and in many cases an unsecure second-hand market for apartments and tenants locked into sub-optimal housing arrangements (Ellingsen & Englund, 2003).

The conversion process

The process of converting rental units into tenant-owned dwellings is initiated by either the property owner, who can decide to sell the property to the tenants or to investors, or by tenants who want to explore the possibility of acquiring the property they live in. The Swedish legislation for conversions (Swe: Ombildningslagen, OMBL, 1982:352) gives the tenants the right to, under certain conditions, acquire the property they live in and convert it to a tenant-owned dwelling.

When a property is up for sale the tenants have a stronger position towards the owner than other investors according to the conversion legislation. The tenants cannot buy their property without first registering a housing cooperative at the Swedish authority Bolagsverket. The registration requires at least three tenants/apartments and at least three board members for the cooperative to be registered. After this step is completed a notification of interest is sent to the selling property company that certifies that two-thirds, or 67 percent, of the tenants in the property are interested in buying. If the seller is a municipality owned housing company and the property is located in the outer suburbs only 40 percent of interest is enough.

The next step in the conversion process begins with a valuation of the property, which forms the

basis for the acquisition price. In many cases, both buy- and sell-side consultants are hired to assist the housing association and the property owner throughout the conversion process. The consultants value the property and establish financial projections and valuation statements for both parties. Subsequently, a negotiation about the acquisition price begins.

The valuation model is a fair market valuation of the property that is facing a conversion into cooperatively owned dwellings and is the same model is used both for private and municipal housing companies. When the valuation is performed the seller offers the property to the housing cooperative. In the cases where the seller is a municipality owned housing company and the buyer a housing cooperative, no negotiations about the acquisition price are made. The housing cooperatives that have been offered to buy a property have a time period of three months to accept the offer with a chance to prolong the acceptance time with another extra three months (Stockholm Stadshus, 2006).

The housing cooperative should then establish a financial projection when the acquisition price has been set. Thereafter the cooperative and the individual tenants apply for a loan with a bank in order to fund the acquisition.

For the conversion to succeed, two thirds of the tenants must vote in favour at the sales meeting (Swe: köpestämma) that is held after the valuation of the property has been set. It is possible for the housing cooperative to go through with several sale meetings if not the majority limit needed, 67 percent, is reached in favour of the conversion in the beginning. When a majority is met, the housing cooperative grant access to the property within a month after signing the sales contract. The tenants who choose not to convert their apartments will still remain tenants in the property under unchanged terms and conditions.

Who privatize and why?

Conversions of rental buildings into cooperatively owned housing cooperatives have been performed in Sweden since the 1970s, but it became common in the 1990s due to the boom period in the 1980s when there was a significant rise in house prices in general and in the prices of cooperatively owned dwellings in particular (Teeland & Siksiö, 1994). It has been a Stockholm phenomenon for many years due to the recent decades' sharp price increase in the area. As mentioned earlier in the thesis, one of the reasons why a conversion takes place is because of the latent overvalues that are associated with rental properties. These overvalues can only appear if there is a discrepancy between the market value of rental buildings and the market value of tenant-owned housing, which implies that conversions can only take place in areas where it exists

a discrepancy large enough for both the property owner and the tenant association to find incentives to go through a conversion.

Previously, such discrepancies have only existed in larger cities as Stockholm, Göteborg and Malmö but with an emphasis on the Stockholm area and in the most attractive areas within the cities. Though, conversions have now spread outside these areas along with a generally increasing price level in the housing market, but it will take time before more rural areas will have the same activity on the conversion market as for example Stockholm (Isaksson, 2011). Today, approximately 75 percent of all conversions are made in the Stockholm area (Boverket, 2010).

Reasons for conversion

Property owners

The reasons why a property company decides to divest parts of its residential housing stock to the tenants vary depending on if it is a municipal or private company. The private landlords have mainly two reasons, financial and strategic. For example, some companies have a buy-and-sell strategy where they hold properties as investments in time periods often determined beforehand, and some may change their fundamental buy-and-hold strategy and for example divest all suburban properties and keep the inner city ones. By selling the peripheral properties to housing cooperatives, the property owners can self-finance inner-city acquisitions and renovations on the properties the landlord choose to keep. Thus, the property owner becomes less dependent on traditional bank lending (Armerin & Song, 2009).

Municipal housing companies are not divesting due to strategic reasons, rather are they adjusting to political agendas where regulations, decision and ideological issues are the cornerstones. This became apparent in 2007 when the new liberal-conservative majority in Stockholm terminated the stop legislation, which was introduced in 2002 by the social democrats in order to protect the rental apartment as a form of tenure, which made it easier for municipal companies to initiate conversions (Boverket, 2009).

The financial reasons are the same for both private and municipal companies where they aim at raising capital for renovations, acquisitions or new constructions.

Tenants

In general, tenants have many and individually different reasons why they choose to go through a conversion. Financial reasons are the most common, but this is very dependent on which area the apartment or building is located in. If the rental apartment is located in an attractive area, for example the inner city of Stockholm, the tenant will most likely see the conversion into a housing cooperative as a good investment due to the latent overvalue that is included in the apartment. In

many cases, the tenants can agree on a conversion that in fact increase the housing costs, sometimes with as much as 60 percent because of the investment (Spångberg 2011 and Isaksson 2011). In less attractive areas, a decrease in housing costs is generally needed for conversion since the latent overvalues are significantly lower and the apartment is not as good of an investment. Thus, the conversion decision can generally be seen as an investment decision in attractive areas and a consumption decision in less attractive, where the tenants see the conversion as a way of lowering their housing costs instead of as an investment where they can make a profit.

Methodology

The statistical methods applied in this thesis are focused on evaluating the dependent variables, price per square meter and acceptance of a conversion offer, and the factors that affect them. This is performed by conducting multiple ordinary least squares (OLS) and probit regressions and reporting the results. The regressions are divided into three steps where the most focal variables are run in every part, respectively. In this section, we explain the outline of our analysis and the rationale behind the use of the explicit model and the motivation for the variables.

The regression models are used to test if the approximation of β is significantly different from zero. If significant relationships exist, this implies that the variable in question do affect the dependent variable in the model. Also, we control for heteroskedasticity by using robust standard errors when running the regressions.

Model – what determines the price?

Our first model aims at investigating which factors that affect the price per square meter for rental apartments when converting them into cooperatively owned dwellings. We run the regression in different steps in order to control the fit of the model and to test for robustness.

Model specification

Regression 1: Regressing the independent variable rent per square meter on price, controlling for parish

$$Price/sqm = \beta_0 + \beta_1 RentPerSqm + \delta_{2i} Parish + \epsilon_{i,t}$$

Regression 2: Adding interest rate, share of vacant apartments, proportion of premises and leasehold dummy

$$Price/sqm = \beta_0 + \beta_1 RentPerSqm + \beta_2 InterestRate + \beta_3 Vacancy + \beta_4 Premises + \delta_5 Leasehold + \delta_{6i} Parish + \epsilon_{i,t}$$

Regression 3: Adding control for seller

$$\begin{aligned} Price/sqm = & \beta_0 + \beta_1 RentPerSqm + \beta_2 InterestRate + \beta_3 Vacancy + \beta_4 Premises + \delta_5 Leasehold \\ & + \delta_{6i} Parish + \delta_{7i} Seller + \varepsilon_{i,t} \end{aligned}$$

Motivation of variables

We motivate our choice of variables from previous research, literature and the market experts we have consulted in order to investigate how rental properties actually are priced when converted from rental units into tenant-owned dwellings. We have one focal variable in the model, which is rent per square meter, and we also add more independent variables that we believe may affect the price.

Dependent variable

The dependent variable in our pricing regression is price per square meter, measured in Swedish Krona (SEK). The price information is gathered from Stockholm Stadshus AB and is used as a measure of pricing between different transactions, since price per square meter is a measure of price weighted against size of the property.

Independent variables

The independent variables are the factors in the regression model that are to be tested if they affect the dependent ditto.

Rent per square meter

Our most focal independent variable is rent per square meter, which is measured in SEK. According to Quiding (2011) and Joachimsson (2011), the rent per square meter can be used as a proxy for the condition of the property, which is an important factor when pricing the rental property before a conversion into cooperatively owned units. Since the rent level is highly regulated in Sweden and the only reason a landlord can increase the rent level above the controlled level is if extensive renovations are made, the apartments that pay the highest rent are those in newly built or renovated buildings. Any rent increase must be permitted by the authorities, which implies that the rent per square meter is exogenously given and therefore a good independent variable.

Interest rate

All market experts (Isaksson 2011, Joachimsson 2011, Spångberg 2011, Quiding 2011) have appointed the interest rate as one of the most important factors to take into consideration when pricing a rental property. If the interest rates are high, the acquisition price must be lower to

compensate so the tenant-owner associations have a possibility to acquire the property. The interest rates are also part of a sensibility analysis, which is used when making financial projections for both the association and the landlord (NAI Svefa, 2009). The interest rate basket is used to better simulate the market conditions and reflect the situation for tenant-owner associations (Spångberg, 2011). The interest rate is also exogenously given and will therefore act as a good variable in our analysis.

Share of vacant apartments

Since the housing cooperatives need to acquire all apartments when converting the rental property into tenant-owned units, the number of vacant apartments should have an effect on the acquisition price if the association should be able to finance the acquisition (Quiding, 2011). When many apartments are vacant, the association miss out on the financial contribution from the vacant apartments' tenants, which should have a negative impact on the price. It is, however, important to point out that these vacant apartments could be acquired by the association during the conversion but sold as tenant-owned units shortly afterwards and thereby causing the association to have an opportunity to realize a profit (Isaksson, 2011) but this is nothing we believe would affect the acquisition price.

Proportion of premises

At valuation, commercial premises are valued less than apartments due to the fact that they can not be sold at the open market as apartments can. Commercial premises are most often kept as rental units. Thus, the premises can only be valued with respect to predicted future cashflows, which implies that the rent level limits the valuation. Quiding (2011) and Isaksson (2011) agree upon the fact that a high proportion of premises in a housing property have a negative impact on the price. Another aspect is that housing cooperatives that owns a property where more than 40 percent of the total area consists of premises can be defined as "false" which implies that the association and its members have to comply with unfavourable tax regulations compared to regular association whose property has a proportion of over 60 percent apartments (Skatteverket, 2011).

Type of tenure

A rental property in Sweden can be transferred with two forms of tenure, leasehold or freehold. The association who acquires a leasehold property needs to pay rent to the landowner, usually the state or the municipality, over a specified amount of years and this form of tenure often have a negative impact on the value of the property and therefore also the price (Joachimsson, 2011). In

order to investigate if leasehold has a negative effect on the price, we use a dummy variable that takes on the value of one if the property is acquired with leasehold and zero with freehold.

Control variables

Control variables are added to the regression in order to better assess the impact of the independent variables and increase the fit of the model (Wooldridge, 2009). In our regression, we use dummy variables for the different parishes in Stockholm as the first control variable, and dummy variables for the seller as the second.

The parish variables function as proxy for location, which is the most important factor to consider when pricing a rental property in connection with a conversion to tenant-owned units (Isaksson 2011, Joachimsson 2011, Spångberg 2011, Quiding 2011), which is why we assume parish to be a proper control variable. Teeland & Siksiö (1994) claim that residential property in the inner city often enjoys a higher market value than property in more outlying areas, and their statement also confirm our choice of control variables.

Stockholm Stadshus AB, who provided us with transaction data, is the parent company for the three sellers Stockholmshem, Svenska Bostäder and Familjebostäder. We have decided to control for these by using seller dummies in the model. Table 3 shows a descriptive summary of the control variables.

Model – who accepts or declines?

The second model will examine if it is possible to find any factors that seem to have a systematic impact on the tenant's decision to convert a rental unit into a tenant-owned dwelling. We have chosen to use a binary measure for our dependent variable, which implies that we need to perform the regressions in a slightly different manner than in the previous part of the thesis.

Model specification

In order to analyze our binary dependent variable, we decided to use probit regression and a binary response model. A more extensive specification of these is given in Appendix.

Regression 1: Regressing the independent variables price per square meter on acceptance

$$Acceptance = \beta_0 + \beta_1 PricePerSqm + \varepsilon_{i,t}$$

Regression 2: Adding controls for seller

$$Acceptance = \beta_0 + \beta_1 PricePerSqm + \delta_{2i} Seller + \varepsilon_{i,t}$$

Regression 3: Adding independent variables interest rate, election participation, household size, age, college, housing price indicator and area near pilot

$$\begin{aligned} \text{Acceptance} = & \beta_0 + \beta_1 \text{PricePerSqm} + \beta_2 \text{InterestRate} + \beta_3 \text{ElectionParticipation} + \beta_4 \text{HouseholdSize} \\ & + \beta_5 \text{Age} + \beta_6 \text{College} + \beta_7 \text{HousingPriceIndicator} + \beta_8 \text{NearPilot} + \delta_{9i} \text{Seller} + \varepsilon_{i,t} \end{aligned}$$

Motivation of variables

Variables also included in the price model are motivated in the previous section of the thesis. No previous research or literature can be found regarding the purchase decision, hence our motivation is strictly based on the market experts' opinions and experience. In this model, our focal variable is price per square meter and we thereafter add more independent variables, that we believe may affect the conversion decision, to the model.

Dependent variable

We have used the dummy variable *acceptance* as the dependent variable that takes the value one if the proportion of positive votes on the sales meeting exceeded 67 percent⁴ and zero if else.

Independent variables

Price per square meter

The agreed acquisition price per square meter is mentioned as the variable that affects the purchase decision the most (Isaksson 2011, Spångberg 2011). The variable is measured in SEK.

Election participation

A certain amount of commitment and involvement is needed in order to go through a conversion. If the tenants in one given property are not involved in the process, this should have a negative impact on the probability for a conversion to be successful. Isaksson (2011) claim that the election participation could be a proxy for the overall commitment and involvement and therefore be used in the regression. The election participation is measured as the percentage of the population that is entitled to vote who voted in the main election for the Parliament in 2006 and is noted on parish level (Valmyndigheten, 2011).

Parish-specific demographic data

Demographic data, as household size, education level and age are all micro level variables that should have an impact on the decision to convert a specific rental unit, and hence the property, or not. As previous noted, the conversion process is associated with different types of

⁴ The proportion of votes needed for the conversion to go through

uncertainty. It is for example possible that a high educational level could decrease the uncertainty that is related to lack of information, or reduce the overall knowledge asymmetry between the tenant and the landlord. Some private landlords use such micro data in order to assess if the property in question should be offered to the tenants or not, as they know that a property with for example tenants with a low average income may find it difficult to fund an acquisition (Isaksson, 2011).

Housing price indicator

The housing price indicator is an index that indicates if the Swedish market expects housing prices to rise or decline (SEB, 2011). Both Spångberg (2011) and Joachimsson (2011) have emphasized on the fact that the psychological factor is important when the tenants are making the decision to convert the rental apartments or not. Thus, the housing price indicator functions as a proxy for the psychological factor and the overall market belief in our model.

Area near pilot project

During 2009, the municipal housing company Svenska Bostäder conducted a project where special focus was directed towards converting rental properties in peripheral areas where no or few conversions previously had been made. This resulted in four pilot areas including Grimsta, Tensta, Vällingby and Farsta (Quiding 2011). Since a conversion is associated with large uncertainty for the tenant, both financial and psychological, we motivate our choice of independent variable by the fact that if a pilot conversion have been conducted in the area, the rate of uncertainty should decrease and it would hence be rational to believe that this would have a positive impact on the conversion decision.

Control variables

As in the previous section of the thesis, seller dummies will be used in the regression in order to increase the fit of the model and to enhance the estimation of the independent variables. We decided to not include parish dummies in this second model since a majority of the parish-specific data would drop out due to perfect multicollinearity.

Data

The data used in this thesis consists of a random sample of 180 attempts to convert rental units into tenant-owned dwellings performed by municipality-owned housing companies in Stockholm. The sample includes both succeeded and failed conversion attempts in the time period 2009-2011 and is sorted quarterly.

Information about the conversion attempts are received from the valuation statements and financial projections from each of the objects sent to us by Joachim Quiding at Stockholm Stadshus AB, which is the group company that control all four municipality-owned housing companies in Stockholm. In the above-mentioned time period, Stockholm Stadshus AB has registered 540 attempts from tenant-owned associations to acquire the rental properties they live in. Since the beginning of 2009 Stockholm Stadshus AB has had an observer from a law firm at each sales meeting (Swe: köpestämma) that reports the voting outcome back to them. Prior to the analysis some of the 180 observations were dropped due to insufficient data and the final sample we use in our analysis consists of 128 unique observations.

Historical data on the three-month-, two-year-, and five-year mortgage interest rates are collected from Swedbank. The historical rates have then been used to create a mortgage basket where the average quarterly interest rate is calculated during our relevant time period and one third of each of the computed average interest rates finally compose the mortgage basket we have been using.

The housing price indicator time series was obtained from SEB/Demoskop (2011). This indicator is based on a survey among 1000 Swedish residents on their future expectations on housing prices and interest rates and is defined as the difference between the share of households who believes in an increase in housing prices and the share that believes in the opposite. The indicator is updated on a monthly basis and we have generated a quarterly average series to better match our data. See Table 2 for a more extensive specification of the interest rates and the housing price indicator.

In order to be able to analyze who accepts or declines a conversion offer, additional information regarding demographic information at parish levels was gathered from SCB (2011). The participation figures from the Parliamentary election in 2006 are taken from the Swedish Election Authority (Swe: Valmyndigheten). From there, election participation proportions at parish levels could be determined.

Since our data consist of a number of individual conversion attempts during a given time period and where the same variables have been analyzed for all observations, our dataset is defined as

cross-sectional dataset which is important for our methodology of the analysis. The same observation is not observed over time and therefore, the dataset is not subject to a time series.

Table 4 exhibits the summary statistics for all variables used in our models.

Results and discussion

Results

What determines the price model

Table 5 reports the results from the cross-sectional regression where price per square meter is regressed on different predictors. The first model investigates the impact that our focal variable, rent per square meter, have on the dependent variable price per square meter. We control for location effects by using parish dummies. As previously mentioned, the rent is used as a proxy for the condition of the property. This implies that a positive beta coefficient of this variable indicates that a good condition of the property have a positive impact on the price. Thus, the results indicate that it exists a positive relationship between rent and price on a 0.1 percent level. The adjusted R^2 , also called the explanatory power, is 0.838 for this stage of the model.

In the second step, we add the remaining independent variables share of apartment vacancy, leasehold, share of premises and interest rate basket while controlling for parish effects. This is done to further investigate which variables have an impact on price per square meters. We note a small decrease in the rent per square meter coefficient and it remains significant on a 0.1 percent level. The coefficient of share of apartment vacancy is negative and statistically significant on a ten percent level.

The coefficient for the leasehold dummy is negative and significant on a five percent level. Thus it indicates that the tenure form leasehold decreases the price. Further, the effect of share of premises on price is insignificant and does not support our theory that a larger share of premises in a property would decrease its value and hence lower the price. The interest rate basket coefficient is negative and significant on a ten percent level. Further, the adjusted R^2 has increased to 0.847 in this step of the model.

In the last regression, we add the remaining control variable seller. The coefficient of our focal variable has slightly increased and stays significant on a 0.1 percent level. The coefficient for share of apartment vacancy remains negative on a ten percent level and experiences only a small change in value. The direction of the coefficient for the leasehold dummy is still negative and with a small increase in value it remains significant on a five percent level. Further, the affect of

share of premises on price is still insignificant while the value of the loan basket coefficient has experienced a small increase, but it remains significant on a ten percent level. The adjusted R^2 is unchanged since the last regression and is still 0.847.

The coefficient of the focal variable in the model varies between 19.87 and 20.07 when more independent- and control variables are added to the model. This suggests that there is a positive relationship between rent per square meter and price per square meter and that the results are robust for different controls. The same reasoning applies to the leasehold variable. The coefficient value only varies a little when adding control variables and stays significant on a five percent level, which indicates that the tenure type leasehold lowers the price. The coefficients for share of apartment vacancy and interest rate basket generally show low t-statistics and therefore only to some extent support our hypothesis that more vacant apartment in a property and a higher rent will have a negative impact on the price.

Further, we see that the adjusted R^2 value increases in our model when we add more variables. This can be an indication of that the added variables increase the fit of the model and that our variables capture a larger part of the factors that affect the acquisition price.

Who accepts or declines model

Table 6 reports the results from the cross-sectional regression where acceptance is regressed on different predictors. The first model investigates the impact that our focal variable price per square meter has on the decision whether one accepts a conversion offer or not. The coefficient is very small and statistically insignificant. The explanatory power, McFadden's adjusted R^2 , is -0.025⁵.

In the second step of the model we add seller as a control variable and note an increase in both the value of the coefficient and in the significant level of our focal variable. The direction of the coefficient is positive and is significant on a ten percent level. The explanatory power has now decreased to -0.051.

In the last stage we add the remaining independent variables and control for seller effects. This is done to further investigate which variables have an impact on who accepts or not and to further test for robustness. The coefficient of our focal variable, price per square meter, has further experienced small increases in value. The impact of the variable is still positive and the coefficient remains significant on a ten percent level. The interest rate basket and area near pilot variables seem to affect the conversion decision negatively but they are statistically insignificant. The

⁵ One of many Pseudo R^2 that is analogous to the R^2 in an OLS-regression. The McFadden adjusted R^2 will not necessarily increase as more variables are added and can take on negative values (Wooldridge 2009).

coefficients for the variables election participation, age, college and housing price indicator are positive and also lack statistical significance. Household size is significant on a one percent level and takes on a positive value, which implies that the household size is positively related to the acceptance of a conversion offer. The McFadden adjusted R^2 did not change when adding the independent variables and more controls.

The coefficient of the focal variable price per square meter is ranging between the values 0.0000287 and 0.0000726 through our model when independent and control variables are added. The significance level is ranging from insignificant values to significant result on a ten percent level. Due to the low significance of the price variable we can only to some extent arrive at the conclusion that a higher price leads to a higher acceptance rate.

The interest rate basket coefficient is negative and this is in line with our hypothesis that a higher interest rate will lower the acceptance rate, but the fact that it is statistically insignificant leads us to the conclusion that we are not able to say confirm our hypothesis. The same reasoning applies to the variable area near pilot, where the hypothesis was that conversion projects near a pilot project would increase acceptance. This theory cannot be confirmed as a result of the insignificant coefficient. The remaining independent variables are insignificant and are not able to explain our assumption that parish specific data, such as age and whether a person has gone to college or not, would have an impact on the decision to accept or decline.

Discussion

Overall, our results are mainly in line with the market experts' view of the market for conversions in Stockholm and the functions and factors that affects it (Isaksson 2011, Joachimsson 2011, Quiding 2011, Spångberg 2011). However, in the second model we receive results that are not statistically significant whereas we will try to discuss the reasons why in this section.

What determines the price model

The first model was built in order to investigate which factors that had an impact on the price when converting a rental building into cooperatively owned dwellings. The results from this regression are displayed in Table 5.

As we have previously stated, the independent variable rent per square meter seem to have a positive impact on the price per square meter. This is in line with what the market experts (Isaksson 2011, Joachimsson 2011, Quiding 2011, Spångberg 2011) believe affects the acquisition price since the rent functions as a proxy for the condition of the property, where a property in a good condition would generate a higher acquisition price. Any rent increases have to be granted by the Swedish authorities, so the rent variable should be considered exogenously given and

hence a good variable to use in the model. When adding other variables in the model the rent variable seem to show the same results with just a small change over the several regressions, which implies that it is robust and that the approximation of the variable is good.

The interest rate is statistically significant on a ten percent level and this means that it has a negative impact on the price but since the statistical significance is low, we should be careful when drawing conclusions. This result is surprising since the interest rate was mentioned as one of the variables that have the most impact on the price (Spångberg 2011 and Isaksson 2011). We had expected a stronger negative relationship between the interest rate and the price but according to our model, this is most probably not the case. There are several reasons to why a variable show such weak significance but in our case, we believe that it must be a consequence of the financial turmoil that has characterized the analyzed time period. In 2009 and onwards the interest rates have been exceptionally low at the same time as the housing prices have not decreased significantly (Catella, 2010). Also, the municipality owned housing companies paused all conversions during an eight-months period in 2008 and 2009 which implies that no conversions in our sample were made when the interest rates were on their lowest levels (Quiding, 2011). This implies that the chosen time period, together with the fact that we only use observations from municipal housing companies, probably result in the low significance of the interest rate variable. If we would have had a larger sample ranging within a longer time period and observations from both private and municipal housing companies, we might have arrived at some different results.

Another variable that is weakly significant is the proportion of vacant apartments in the building that was converted. The fact that the proportion of vacant apartments do affect the price is in line with what we previously have noted (Joachimsson, 2011 and Quiding, 2011) and is attributable to the fact that the vacant apartments need to be financed by the cooperative association as well as the occupied ones. Since the proportion of vacant apartments may be correlated by the location of the property, e.g. that a less attractive area has more vacant apartments than an attractive area, this variable may be subject to endogeneity issues but as we control for parish, we believe that these issues are not namely affecting the results of our model. However, we can not assume a clear relationship between vacancy and price due to our weak results.

The negative impact on the price that derives from the fact that the property is transferred with the tenure type leasehold agrees with which factors Quiding (2011) claims have impact on the price.

The last independent variable we used in our analysis is the proportion of premises in the building. Joachimsson (2011) and Isaksson (2011) indicate that the proportion of premises in a property that is going through a conversion would have a negative impact on the price. Contrary to their beliefs, our results show no relationship between the share of premises and the price per square meter. There are two possible explanations to this. First, the variable may not have an impact on the price and second, there may be something wrong with either the model, the variable or the sample. The variable may also be subject to endogeneity issues since even though we control for location through our parish variables, the attractiveness from a commercial scope may not be captured by our model. For example, some areas are more attractive than others through a commercial perspective, which depends on factors not only attributable to parish level. This can be illustrated by a rental property at Nybrogatan in the inner city of Stockholm where the premises were valued higher than the apartments when divesting the property to a housing cooperative (Isaksson, 2011). This anomaly explains the fact that even though a high share of premises generally is seen as negative when valuating the building, there are exceptions.

Who accepts or declines model

We decided to use the price per square meter as our focal variable in order to see if it had an impact on the conversion decision. Since the variable is only statistically significant on a ten percent level, it seems like it has a weak impact on the conversion decision which is practically in line with what for example Joachimsson (2011) stated when claiming which variables that are most important for the conversion to go through. The price may not be of the greatest importance since there are many other factors affecting the conversion decision. Spångberg (2011) mentions that it sometimes is possible that the tenants can accept an increase in housing costs when converting the apartments, which implies that other factors such as the investment decision and expected market price may affect the conversion choice in a larger extent than the acquisition price. It is also possible that the fact that the data we have used only derives from municipal housing companies, who set a price that is non-negotiable for the tenants, may result in a situation where the acquisition price is not the main factor when determining if the conversion will take place or not.

Though, the positive coefficient can also be interpreted as the price being a proxy for condition, since we have found a positive relationship between price and the condition of a property in our price regression. This implies that a better condition of the property may lead to more people accepting a conversion offer. As previously stated, the significance is so low that it can only to

some extent support our hypothesis that a higher price or better condition of the property leads to a higher acceptance rate.

In the model, we also used parish-specific demographic data in order to investigate if demographics such as income and household size had any effects on the conversion decision. The only variable that seems to have an impact on the decision is the household size. The fact that the household size is the only demographic variable that is statistically significant is difficult to explain. The household size can be of importance when deciding to accept the conversion offer or not since it is related to life cycle matters and hence it is possible that a family with a larger average household size find it more important to own the apartment they live in than a single-person household, and maybe also related to financial abilities (Isaksson, 2011). The other variables do not seem to have an impact on the conversion decision, or maybe this may be due to an insufficient data sample. It is also possible that the household size is correlated with other variables as for example age, which implies that this variable may be subject to multicollinearity issues. If this is the case, individual effects on acceptance are difficult to distinguish. Thus, we decide to use the results from the household size variable with caution.

The independent variables interest rate, election participation, housing price indicator and area near pilot project are not statistically significant either, which implies that we can not draw any conclusions of if these factors affect the conversion decision or not. The insignificance of almost all independent variables is in contrary to what the market experts (Isaksson 2011, Joachimsson 2011, Quiding 2011, Spångberg 2011) claim to have an impact on the conversion decisions. This may be due to several reasons such as an insufficient number of observations, incorrect data or sample selection or to a misspecified model. Since the *acceptance* variable is based on succeeded and failed conversions the fact that we have few failed compared to succeeded conversion observations may lead to a form of selection bias, which is addressed in next section in the thesis, that may negatively affect the results.

Econometric considerations

In an analysis like ours, it is important to consider the potential econometrical problems in order to better understand and interpret the results.

Endogeneity

Since the variables we use in our model are not in all cases strictly exogenous, we must address the problem with endogeneity. Endogeneity issues occur when there is a correlation between the error term and the explanatory variable (Wooldridge, 2009) and may be a result of for example omitted variables or sample selection error. Some of our variables are exogenously given, such as

the rent per square meter, type of tenure and the interest rate but in others, it may be an underlying trend in the observations or the variables may be correlated to factors not included in our model. In our models in general and in the second model in particular we can identify potential endogeneity issues in many of our variables, and this implies that we need to be cautious when interpreting the results. For example, the parish-specific demographic variables may be related to each other and with factors that may be included in the error term. Also, it is for example possible that factors as “area attractiveness”, which are difficult to control for in the model, affect the proportion of vacant apartments or share of premises in an apartment building which in turn would bias the results from the first model. Since this factor is not included as an independent variable it is included in the error term and thus some of the independent variables are correlated with the error term and endogeneity issues occur due to the omitted variable problem. One way of controlling for such issues is to create instruments for the endogenous variables, but we have decided not to perform this in our thesis due to the lack of sufficient data.

Selection bias

Another concern that needs to be addressed is the likelihood of selection bias, where the analysis result may be distorted due to collecting or selecting wrong dataset or sample. In our case, we have used a random sample of both succeeded and failed conversions from a limited time period. This methodology should provide for a sample that is sufficient to analyze without too large of a risk for selection bias. Though, having more observations regarding failed conversions would have increased the credibility of the data and also might have enhanced our results.

Conclusions

The objective of this thesis has been to investigate which factors that determine the acquisition price per square meter for rental properties, when converting a municipally owned rental property into cooperatively owned apartments, and on the tenant's decision to go through a conversion. More specifically, we have analysed the market for conversions in order to decide on which variables we should include in our models since little or no relevant previous research have been applicable. Further we have used these variables in two regression models in order to test whether we can establish relationships between the variables of interest.

By means of operationalizing our primary objective we have consulted market experts in order to test if their practical views and experiences can be theoretically and statistically established. In general, our findings confirm the market experts' views in the first model, where we test which factors that determine the price, whereas it is difficult to draw any overall conclusions from the

second model.

Our results indicate a significant positive relationship between our focal variable rent per square meter, which also functions as a proxy for the condition of the property, and the dependent variable price per square meter. We can also see that the variables share of vacant apartments in the building to be converted, the tenure type and, in some extent, the interest rate have some impact on the acquisition price.

When trying to determine which factors that systematically affect the decision to accept a conversion offer, we find that our results do not provide us with any clear answers. The only variables that show some statistical significance are the price per square meter and the household size. There can be many reasons to why the second model does not show significance results for the majority of the variables used.

However, even though we have not been able to fully determine which factors that affect the conversion process, we would like to evince the fact that our study contributes to the literature by placing market applications and knowledge in a quantitative perspective.

Suggestions for further research

As our chosen field of study for our thesis is highly interesting and lacks comprehensive and extensive research, we feel like there are many gaps to be filled in the knowledge arena. For example, research investigating the same questions we have brought up in our thesis but with fewer limitations should be of a large interest. Adding observations from private landlords could maybe create a valuable dimension of the analysis and a comparison between pricing and valuation could be performed. By extending the time period and hence adding more observations to the dataset, hopefully it would be easier to get significance in the second model and the interest rate would perhaps be of greater importance to the dependent variables. Another interesting approach would be to analyze and compare different cities.

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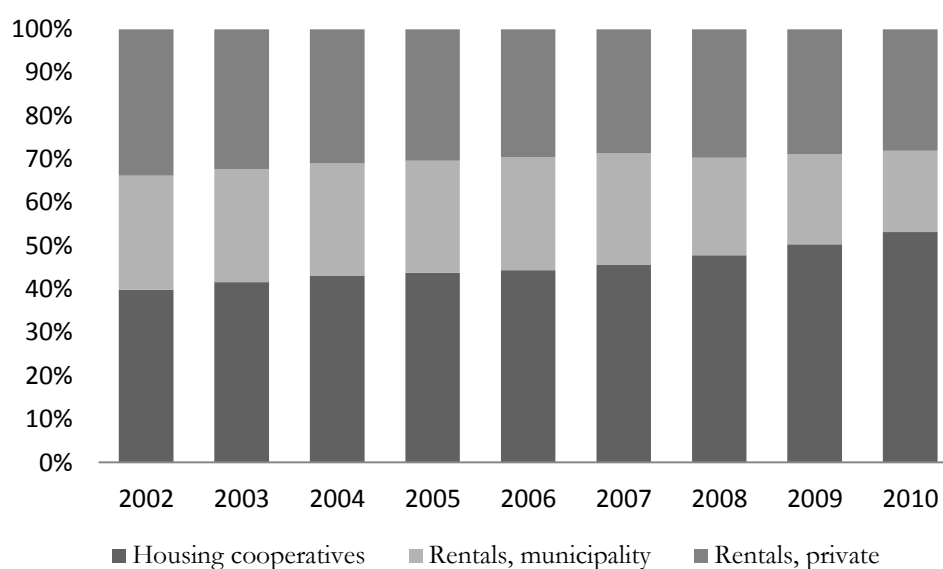
Table 1 Stock of multi-family units in Stockholm, split by type of tenure

This table and the graph below reports how the total housing stock in Stockholm is split between different types of tenure and how it varies over time. The data is collected from SCB and USK.

Type of tenure	2002	2003	2004	2005	2006	2007	2008	2009	2010
Housing cooperatives	39,9%	41,6%	43,1%	43,7%	44,4%	45,7%	47,8%	50,4%	53,2%
Rentals, municipality	26,3%	26,1%	25,9%	25,9%	26,0%	25,6%	22,6%	20,8%	18,8%
Rentals, private	33,8%	32,3%	30,9%	30,4%	29,6%	28,7%	29,7%	28,9%	28,1%
Total	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Source: SCB/USK

Total housing stock of multi-family units split between different types of tenure over time



Model specification of the binary response model and description of the probit regression

A binary dependent variable is an example of a limited dependent variable, whose range of values is restricted to zero or one. Often when analysing binary dependent variables, *linear probability models* are used. There are though several disadvantages one have to consider when using this model, for example that the fitted probabilities can be less than zero or greater than one. Therefore, we have decided to use a more sophisticated *binary response model*. Because of the nonlinear nature of the dependent variable, a standard, linear OLS regression is not applicable. This implies that we need to use another method when analysing our binary dependent variable, and we have chosen to use maximum likelihood estimation. Worth noting, though, is that the OLS estimator is the maximum likelihood estimator under the classical linear model assumptions (conditional on the explanatory variables) (Wooldridge, 2002).

We have chosen to use a probit regression, which is a type of binary response model, for our analysis. The binary response model can take the form:

$$P(y = 1 | x) = G(\beta_0 + \beta_1 x_1 + \dots + \beta_k x_k) = G(\beta_0 + x\beta)$$

In the above model, G is a function that take on values between zero and one, $0 < G(z) < 1$, for all z . This implies that the estimated probabilities are strictly restricted to values between zero and one. In most applications of binary response models, the primary goal is to explain the effects of the x_j on the response probability $P(y=1 | x)$. The magnitudes of the coefficients of β_j are not by themselves useful for analysis in contrast to the linear probability model. In most cases, we would want to estimate the effect of each x_j on the probability $P(y=1 | x)$ but this is difficult due to the non-linearity nature of $G(z)$ (Wooldridge, 2002).

Table 2 Historical interest rates and housing price indicator

The interest rate we have used in our analysis is based on an average quarterly rate from Swedbank. The mortgage basket consist of 1/3 of the average five year rate, 1/3 of the average two year rate and 1/3 of the average three month rate and is used in order to simulate the market conditions when the housing cooperative seeks funding for the acquisition when converting the rental property into cooperatively owned dwellings. The housing price indicator is collected from SEB/Demoskop and is calculated as an indicator on future market prices in the housing market, based on 1000 interviews. The housing price indicator is calculated on a monthly basis and we have computed the average quarterly series in order to better match our other variables.

The table and the graph below illustrate how the interest rates and the housing price indicator has varied across our analysed time period.

Interest rate	2009				2010				2011
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Avg 5 yr rate, %	4,34	4,51	4,42	4,22	4,23	3,96	3,88	4,37	5,14
Avg 2 yr rate, %	3,20	2,87	2,62	2,51	2,61	2,65	2,86	3,42	4,11
Avg 3 m rate, %	2,70	2,03	1,73	1,56	1,62	1,80	2,24	2,84	3,48
Mortgage basket, %	3,41	3,13	2,92	2,76	2,82	2,80	2,99	3,54	4,24
Housing price indicator	-24,7	8,0	27,0	39,7	35,3	34,3	29,7	43,0	31,7

Source: Swedbank, SEB/Demoskop

Interest rate basket and housing price indicator displayed over the time period

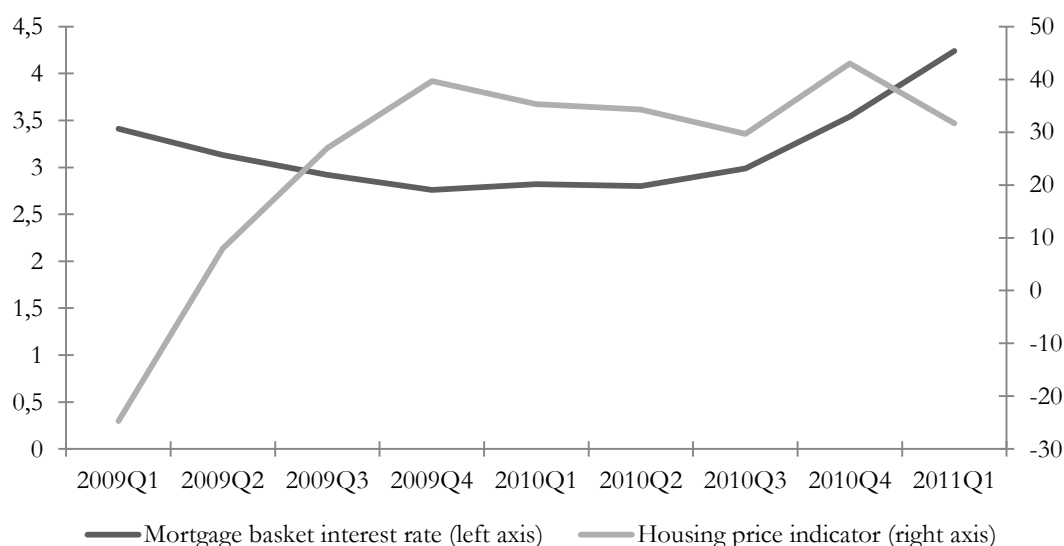


Table 3 Descriptive summary of control variables

Table A reports the total number of parishes used in the model and the observations are ranging between October 2009 and March 2011. All parishes are within the Stockholm area. The table show how frequent a certain parish is represented in the model.

Table A

Parish	Frequency	Percent
Adolf Fredrik	2	1.57
Bromma	14	11.02
Brännkyrka	5	3.94
Enskede-Årsta	10	7.87
Farsta	10	7.87
Gustav Vasa	1	0.79
Hedvig Eleonora	4	3.15
Hägersten	24	18.9
Högalid	10	7.87
Katarina	3	2.36
Kista	1	0.79
Kungsholm	1	0.79
Maria Magdalena	6	4.72
Oscar	1	0.79
Sankt Göran	2	1.57
Skarpnäck	9	7.09
Skärholmen	3	2.36
Sofia	5	3.94
Spånga-Kista	1	0.79
St Göran	1	0.79
St Johannes	1	0.79
Stockholms Domkyrkoförsamling	2	1.57
Vantör	2	1.57
Vällingby	7	5.51
Västerled	2	1.57
Total	127	100

Table B displays the total number of sellers represented in the model and all observations are ranging between October 2009 and March 2011. All sellers are municipal housing companies and are subsidies to Stockholm Stadshus AB. The table show how frequent a certain seller is represented in the model.

Table B

Seller	Frequency	Percent
Familjebostäder	53	42.06
Stockholmshem	33	26.19
Svenska Bostäder	40	31.75
Total	126	100

Table 4 Summary statistics

Table A: Presenting summary statistics of the variables in the first regression where *price per square meter* is the acquisition price weighted against the living area of the property acquired, *rent per square meter* is the rent level before the conversion which also functions as a proxy for the condition of the property, *interest rate basket* is comprised of 1/3 of the average five-year rate, 1/3 of the average two-year rate and 1/3 of the average three-month rate, *share of vacant apartments* is the proportion of vacant apartments relative to the total number of apartments in the building, and the *proportion of premises* is defined as the total area of premises relative to the total building area. The variables interest rate, share of vacant apartments and proportion of premises are reported in percentages in decimal format and all variables are reported between 2009 and 2011.

Table A

Variable	min	mean	max	sd	skewness	kurtosis
Price, SEK/sqm	8049	19087	34425	6427	0,51	2,53
Rent, sqm	648	1023	1658	171,34	1,58	6,23
Interest rate basket	0,03	0,03	0,04	0,00	2,65	8,87
Share of vacant apartments	0	0,07	0,04	0,75	10,54	112
Proportion of premises	0	0,12	0,48	0,12	1,23	3,52

Table B: This table report summary statistics of the variables in the second regression. *Price per square meter* is the acquisition price weighted against the living area of the property acquired, *interest rate basket* is comprised of 1/3 of the average five-year rate, 1/3 of the average two-year rate and 1/3 of the average three-month rate, *housing price indicator* is calculated on a monthly basis and we have computed the average quarterly series in order to better match our other variables, *election participation* consist of the share of citizens out of those entitled to vote that was voting in the main elections in 2006 on a parish level, *household size* measures the average size of household on a parish level, *age* reports the average age in the households on a parish level and *college* is defined as the share of the population with college as the lowest level of education calculated on a parish level. Interest rate, election participation and college are reported in percentages but in a decimal format and all variables are reported between 2009 and 2011.

Table B

Variable	min	mean	max	sd	skewness	kurtosis
Price, SEK/Sqm	8049	19087,47	34425	6426,75	0,51	2,53
Interest rate basket	0,03	0,03	0,04	0	2,65	8,87
Housing price indicator	29,67	35,71	43	3,55	0,18	2,45
Election participation	0,63	0,79	0,87	0,04	-1,33	6,22
Household size	1,76	2,25	3,06	0,25	0,61	4,05
Age	27,75	33,44	36,94	1,63	0,05	4,18
College	0,56	0,66	0,77	0,05	-0,04	2,83

Table 5 Results: What determines the price?

The table reports the results from the first model: $Price/sqm = \beta_0 + \beta_1 RentPerSqm + \beta_2 InterestRate + \beta_3 Vacancy + \beta_4 Premises + \delta_5 Leasehold + \delta_{6i} Parish + \delta_{7i} Seller + \varepsilon_{it}$ where we have used a standard multiple OLS regression. The sample period is between October 2009 and March 2011. Standard errors are clustered and robust and t-statistics are reported within brackets. Statistical significance at the level of 0.1, 1 and 5 percent are denoted by ***, ** and *, respectively. The number of observations used in the model and the adjusted R^2 is reported in the last row. We correct for heteroskedasticity using robust standard errors. Please refer to Table 3 for a detailed outline of how all variables are defined.

Variable	Price per square meter		
	Reg (1)	Reg (2)	Reg (3)
Rent per sqm	19.87*** (7.90)	19.67*** (7.47)	20.07*** (7.30)
Share of vacancy		-98158.6 (-1.73)	-101007.1 (-1.78)
Leasehold dummy		-1459.0* (-2.31)	-1957.1* (-2.09)
Proportion of premises		252.1 (0.09)	374.6 (0.13)
Interest rate basket		113622.9 (1.87)	116977.5 (1.74)
Parish dummy	Yes	Yes	Yes
Seller dummy			Yes
N	111	110	109
Adjusted R ²	0.838	0.847	0.847

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6 Results: Who accepts or declines?

The table reports the results from the second model: $Acceptance = \beta_0 + \beta_1 PricePerSqm + \beta_2 InterestRate + \beta_3 ElectionParticipation + \beta_4 HouseholdSize + \beta_5 Age + \beta_6 College + \beta_7 HousingPriceIndicator + \beta_8 NearPilot + \delta_{gi} Seller + \varepsilon_{i,t}$ using a probit regression and a binary response model. The sample period is between October 2009 and March 2011. Standard errors are clustered and robust and t-statistics are reported within brackets. Statistical significance at the level of 0.1, 1 and 5 percent are denoted by ***, ** and *, respectively. The number of observations used in the model and the adjusted McFadden R^2 is reported in the last row. We correct for heteroskedasticity using robust standard errors. Please refer to Table 3 for a detailed outline of how all variables are defined.

Variable	Acceptance		
	Reg (1)	Reg (2)	Reg (3)
Price per sqm	0.0000287 (1.43)	0.0000337 (1.71)	0.0000726 (1.93)
Interest rate basket			-41.12 (-1.04)
Election participation			5.164 (0.63)
Household size			6.156** (2.61)
Age			0.371 (1.30)
College			7.512 (1.22)
Housing price indicator			0.0729 (1.23)
Area near pilot			-0.404 (-0.57)
Seller dummy		Yes	Yes
N	127	126	126
McFadden $A R^2$	-0.025	-0.051	-0.051
McFadden R^2	0.015	0.03	0.03

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$