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Auction Price Formation with Costly Occupants: Evidence Using Data from the Osaka District Court

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Abstract

Foreclosure properties sold at Japanese judicial auctions are delivered to buyers with an unclear title when occupants exist, because the foreclosure laws protect occupants from compulsory execution of auctions. The existence of occupants theoretically affects the auction price through two channels. First, it affects the reserve price, and this changes in auction price. Second, the number of bidders changes in response to changes in the reserve price that is controlled by occupants, and this changes the auction price. Using data from the Osaka District Court, we empirically find that the existence of occupants in properties reduces the auction price through two channels.

JEL classification: D44, K19, R31

Key words: judicial auction, foreclosure law, occupant

1 Introduction

The Japanese economy experienced a decade of economic stagnation in the 1990s. Because the loss in value of real estate was substantial, Japanese financial institutions found that the property taken as collateral was not enough to fully recover their loans. Creditors listed their foreclosure properties at a judicial auction to recover part of their loans by selling off the collateral. Their prompt sales in the auctions should have reactivated the real estate market and contributed to a recovery from the long depression. Regrettably, however, the existence of costly occupants protected by the foreclosure laws has been working as a brake to these desirable changes.[1] The purpose of this paper is to examine how these costly occupants affect the auction price formation using data from the Osaka district court.

Allen and Swisher (2000) show that real estate properties sold in auctions appear to sell at a significant discount relative to predicted market values, using the data from the Department of Housing and Urban Development (HUD) auctions in Florida. One of the reasons is that troubled financial institutions try to quickly dispose of large amounts of distressed real estate.[2] Hence, buying real estate properties through the auction is attractive to prospective buyers. Nevertheless, public buyers were very few and the auction was limited to professional realtors in Japan. As a result, real estate properties sold in the auction fell further in value. Why did public buyers hesitate in participating in the auction market in Japan? The main reason is a difference in the treatment of the property title between the US and Japan. According to Allen and Swisher (2000), foreclosure properties sold at HUD auctions are delivered to the buyer with a clear title. All liens and other encumbrances of record are eliminated through the foreclosure process before HUD accepts title. In contrast, before the revision of the foreclosure laws in 2003, titles in Japan were unreliable because of costly occupants. The foreclosure laws before 2003 protected occupants in the following way. First, civil law stated that a lease contract prevails

[1] Tomura (2007) presents a dynamic general economic equilibrium model that captures endogenous fluctuations in total factor productivity (TFP) in response to credit market shocks. In his model, TFP is defined as the average productivity of land. He shows that restrictions on liquidating collateral assets under the foreclosure laws caused negative credit market shocks and an endogenous fall in the TFP growth rate in Japan in the 1990s.

[2] Mayer (1998) also shows real estate properties sold in auctions appear to sell at a discount relative to negotiated sales. His results are consistent with the theoretical prediction of his earlier work (Mayer 1995) that the auction discount increases in downturns when a seller trades off a longer expected selling time in a search market against an immediate auction sale.

over a mortgage agreement, even if the lease was signed after the mortgage was registered. Therefore, if a foreclosed building was rented, it was difficult to evict the tenant. Secondly, the civil execution law stated that it is necessary to identify a occupant to enforce compulsory execution of an auction. The original purpose of these laws related to foreclosure was to protect the interests of occupants, who were considered to be in a weak position. These laws, however, have been producing harmful side effects. Faced with an impending foreclosure, a debtor or a creditor with a lower mortgage order could quickly arrange a lease to obstruct the compulsory seizure of property by a creditor with a prior mortgage order. Pretending to be a benign third party, the tenant approaches a creditor with a prior mortgage order or a successful bidder, offers an early evacuation and demands a large compensation for leaving the property. Such an occupant was called a professional occupant, often having links with an organized crime syndicate. In 2003, both the civil law and the civil execution law were relaxed.

In recent studies, the variable for the current types of occupancy has been important. Using data from real estate auctions in Singapore, Ong, Lusht and Mak (2007) use the possession of vacant properties, but it is not significantly associated with the probability of sale. They argue that this is because vacant possession may be completely captured in prices paid. Alternatively, it may be because it is costless to remove occupants in Singapore. Saita (2003) provides the most closely related study to our work. She uses an hedonic analysis to estimate judicial auction prices associated with distress properties in Tokyo, for the period 1992–2002. She uses a current use dummy variable that takes the value one when a tenant occupies a dwelling, and *directly* measures the effect of the tenure status of the property on the auction price. As expected, the dummy variable has a statistically negative and significant impact on the auction price.

Our empirical model is based on auction theory. Similar to Ooi, Sirmans and Turnbull (2006), we present a sealed-bid private model corresponding to the Japanese judicial auction system. The model shows that the tenure status of the property affects the resultant auction price through two channels. First, the tenure status of the property affects the reserve price, and this changes the auction price. Second, the number of bidders changes in response to changes in the reserve price that is controlled by the tenure status, and this changes the auction price.

It is commonly said that a court considers the risk of a costly tenant to the success of selling distressed properties. Therefore, we assume that the reserve price depends on the tenure status.

We use data of the auctions under the jurisdiction of the Osaka District Court for the period 1997–2004. The court made available documents including information of foreclosure properties. In contrast to Saita (2003), our empirical model *indirectly* measures the tenure status of the property through the two channels mentioned above. Our estimation model is formed by three equations, the reserve price, the number of bidders, and the auction price. There is information in the court's documents that is difficult to express numerically. The reserve price may be influenced by these omitted variables which are also associated with both the number of bidders and the auction price. To address this concern, we use generalized method of moments (GMM). The empirical results show that the existence of occupants in foreclosure properties reduces the auction price by reducing the reserve price. The existence of occupants further reduces the auction price by decreasing the number of bidders.

The remainder of the paper is organized as follows. The next section describes the process of judicial foreclosure in Japan. In Section 3, a theoretical model is presented. The data and empirical model used are discussed in Section 4, along with the empirical results. Section 5 summarizes the main conclusions of the paper.

2 The Judicial Foreclosure Process

In the 1990s, real estate auctions under court jurisdiction were used to dispose of property involved in foreclosure or bankruptcy. Japanese sealed-bid auctions proceed as follows: first, the district court announces an impending auction, and determines the period, normally longer than a week and shorter than a month, in which the buyers send their bids. An appraiser's valuation is open to the public in advance, called a *minimum price*, and this forms the basis for the bidders' submitted prices, as the bid prices must be higher than this minimum. The court lets the potential buyers examine documents containing details of the property, including size, location, and quality, as well as the appraiser's report, the names of occupants and tenants if there are any, and the renting contract that the buyer must inherit.

Second, the court starts accepting the bids. A bidder must pay a deposit equivalent to 20% of the minimum price. No bidders know how much others bid. Nor can the bidder change the bid price once the bid is submitted. The court closes the process and announces who bid the highest price. In the third step, the winner pays the price and registers the estate as his or her property, and the property is delivered to the new owner. In contrast to HUD real estate auctions in Florida (Allen and Swisher 2000), the new owner must evict occupants, if any, at his or her own cost even if they are not protected by law.

Accumulated bad loans in the late 1990s encouraged the liquidation of the collateral real estate by improving the auction procedure. Therefore, the foreclosure laws in Japan were amended to ensure the prompt execution of auctions in 1998 in various ways. Mortgagees' banks and other financial institutions typically also initiate auctions in Japan but they cannot influence the minimum price. Before the amendment, minimum prices did not change even if properties failed to sell. The new procedure requires minimum prices to be determined by considering the state of the real estate market and the particular circumstances of the property. If properties fail to sell, the court can lower the minimum price mechanically, by 30%, for example. Bidders are able to arrange loans with banks or other financial institutions by setting the property to be auctioned as collateral. In these ways, the 1998 amendments of the foreclosure laws greatly improved Japanese real estate auctions. Although land prices in the general market continued to decrease substantially, by 4.15% before and 6.04% after the amendment, the average number of bidders increased from 4.67 to 8.15 persons in the Osaka area. The average period starting from the foreclosure to the successful auction decreased by almost half; from 560 before to 276 days after the amendment.

However, both the civil law and the civil execution law mentioned in Section 1, which protect occupants and produce problems of execution obstruction on auctions, were not amended until 2003.

3 The Model

The purpose of this section is to link the observable characteristics of winning bidders and properties to the observed auction prices in our empirical study. Similar to Ooi, Sirmans and Turnbull (2006), we use a model of a first-price sealed-bid auction with symmetric independent private values corresponding to the Japanese judicial auction. Consider a judicial auction of a property k. There is a reserve price (minimum sale price) r_k, which is determined by a court:

$$r_k = r(h_k, t_k), \tag{1}$$

where h_k is a vector of housing traits, and t_k are dummy variables for the tenure status of the property.[3]

Assume that there are N_k potential bidders in the auction for the property k. Their private value of the property k depends on their own valuation θ_i, and the reserve price r_k, which includes public information on property k:

$$v_{ik} = v(\theta_i, r_k).$$

For simplicity, assume that the functional form is specified by:

$$v_{ik} = \theta_i r_k,$$

where $\theta_i r_k$ is drawn from the distribution F which has support $[0, \bar{\theta} r_k]$. This equation implies that a bidder i estimates their private valuation of the property k, using public information on the reserve price r_k. All bidders' valuations increase when r_k increases. Bidders consider the private value of the other bidders as random realizations from F.

Only those participants whose private value is not less than r_k (i.e., $\theta_i \geq 1$) decide to participate. Therefore, all bidders know the actual number of bidders:

$$n_k = N_k \int_{r_k}^{\bar{\theta} r_k} dF(v). \tag{2}$$

[3] We do not consider the optimal strategy of a seller (court). In contrast, McAfee, Quan and Vincent (2002) show the optimal reserve price using the common-value model, and then empirically test the real estate auction data.

Thus, the number of bidders is associated with the reserve price. The effect of the reserve price on the number of bidders is indeterminate because both the lower limit and upper limit change in response to r_k changes.

The equilibrium is a symmetric Bayesian–Nash equilibrium. For a given r_k from Eq. (1) and n_k from Eq. (2), we obtain the well-known optimal bidding function for bidder i:

$$b_{ik} = v_{ik} - \int_{r_k}^{v_{ik}} \left[\frac{F(x)}{F(v_{ik})} \right]^{n_k - 1} dx. \tag{3}$$

Therefore, the bidding price depends on the reserve price and the number of bidders (see, e.g., Quan 1994).

Figure 1 reveals that there are two ways in which the current tenure status affects the bidding price. Firstly, the tenure status of the property affects the reserve price from Eq. (1), and this changes the bidding price from Eq. (3). We call this effect the first effect. Secondly, the number of bidders changes in response to changes in the reserve price through Eq. (2), and this changes the bidding price from Eq. (3). We call this effect the second effect.

4 Empirical Analysis

4.1 The Data and the Econometric Model

The auction of property takes place in each area under the jurisdiction of a district court in Japan. We use data of auctions under the jurisdiction of the Osaka District Court for the period 1997–2004.[4] Osaka has the second largest economy in Japan. We concentrate on data for Osaka rather than that for Tokyo, because a private company makes the information available in an electronic database only for Osaka. The court carried out 223 auctions, and the total number of properties is 33,222. The sample we used in the analysis is as follows. First, we dropped observations outside Osaka City, where Osaka City is the seat of the Osaka prefecture. Second, we used only the sample of residential condominiums, excluding detached houses, nonresidential housing, offices, shops, and warehouses. Third, we dropped the sample of condominiums that failed to

[4] The foreclosure laws of Japan were amended in 2003 as mentioned in Section 2, and enforcement commenced on April 1, 2004. Because we highlight the effect of the foreclosure laws on the auction price before the revision of the laws in 2003, we do not include data after 2005.

sell in both initial and subsequent auctions.[5] Fourth, we dropped the sample of condominiums sold by bulk sale, because we cannot allocate a price to each condominium. Lastly, we dropped all observations for which all of the necessary information is not available. Screening the data in this manner, we obtained a sample of 3251 observations of condominiums that sold in auctions.

Our estimated model involves three equations as in Figure 1. Table 1 presents the definitions and Table 2 shows the summary statistics of the variables used in the empirical model. First, a hedonic approach is employed to investigate the reserve price. The most important variable that we focus on is the tenure status of the property. The types of occupancy are classified into four different categories: short-term leasehold, long-term leasehold, third-party occupancy, and vacant (reference category). Both short-term leasehold and long-term leasehold have previous rights and obligations still attached to the property. Short-term leasehold is formed by contract after the mortgage is registered, while the long-term leasehold is formed before. The short-term contract expires in three years, so that the new owner must wait three years at most to obtain full rights to the property. With long-term leasehold it is harder to obtain full rights, because it is almost impossible to cancel a long-term leasehold if tenants want to continue residing in foreclosure properties under the civil law of Japan. Therefore, it is time consuming and costly to evict tenants associated with short-term leasehold or long-term leasehold, and consequently the reserve price of these properties will be lower than vacant properties. As short-term leaseholds expire in three years, the cost and time to evict tenants might be lower than the long-term contract. Third-party occupancy properties have pre-auction rights and obligations that are either not clear or still attached to the property. A reserve price of this type will also be lower than that of vacant properties because of ambiguity of occupancy. In fact, Table 3 shows that the reserve price of both leasehold auction properties and third-party occupancy properties are lower than vacant properties on average.

Other control variables that capture features of the Japanese judicial auctions are Delinquency and Failure. Delinquency is the amount of delinquency of administration costs of a mortgagor, such as common area maintenance fees, water expenses, etc. A winning bidder must

[5] Toda, Nozdrina and Maddala (1998) estimated the auction price of apartments in Moscow. They estimated a hedonic function by maximum likelihood using data of apartments not actually sold.

take care of this delinquency instead of the mortgagor. The expected sign of Delinquency is negative. Failure represents the number of times that a property fails to sell at auction. As mentioned in Section 2, from 1998 onwards, the court lowered the reserve price if properties failed to sell. Therefore, we use two dummy variables: Failure before and Failure after. We expect that the negative sign of Failure after will be smaller than Failure before. To estimate the reserve price we also incorporate hedonic characteristics, including the construction material, number of floors in the condominium, size, age of building, location, and the time dummy variables.

Second, we estimate the number of bidders who are controlled by the reserve price. We also control general market conditions by introducing the assessed land value. Because the land value and the potential number of bidders might have a positive correlation, the former might be a proxy for the latter. Furthermore, we include time dummy variables. These will capture the effect of legal amendments after 1998. Table 3 shows that the number of bidders of short-term leasehold auction properties and third-party occupancy properties is smaller than the number of vacant properties on average. However, the number of bidders of long-term leasehold auction properties is larger.

Third, the auction price incorporates the reserve price and the number of bidders is estimated. We also control the assessed value of land and characteristics of the winning bidder. Similar to Ooi, Sirmans and Turnbull (2006), we do not have observations on individual bids; instead we have data for the winning bid and a few characteristics of the winning bidder. For characteristics of the winning bidder, we include a dummy variable that takes the value one when joint-stock corporations are the highest bidder. Individual bidders are the reference category. Joint-stock corporations that include real-estate brokers usually resell foreclosure properties to prospective buyers. They make a profit on each unit equal to the difference between their bid price and prospective buyers' bid price. It is commonly said that individual buyers also aim to participate in the judicial auction for the same reason as corporations. Therefore, individual buyers might be related to professional realtors. Similar to the reserve price, Table 3 reveals that the auction price of vacant properties is the highest.

As mentioned above, our estimation model is formed by three equations: the reserve price, the number of bidders and the auction price. The model is determined sequentially. We use GMM because it overcomes the correlation among error terms present for the following reason. There is information in the court's documents that is difficult to express numerically. The reserve price may be associated with these omitted valuables that are also associated with both the number of bidders and the auction price. Note that in the estimation stage, we use a natural logarithmic transformation of all variables, except the dummy variables.

4.2 Estimation Results

Table 4 provides the estimation results of the reserve price. Before discussing the effect of occupants on the reserve price, we briefly consider another control variable. All hedonic characteristics for property have significant and expected signs. Floor and Size have a statistically positive significant impact on the reserve price, that is, larger dwellings with more stories have higher minimum prices. In contrast, an older dwelling has a low price. Proximity to a train station is negatively associated with the reserve price. As expected, the larger the amount of debt that the winner bears, the lower the reserve price. The coefficient of Failure after has a smaller negative value than Failure before, implying that the district court lowers the reserve price if properties fail to sell after the 1998 amendments. Interestingly, all the year dummies have a statistically negative sign. This implies that the district court aggressively lowers the reserve price to sell foreclosure properties. As expected, Short-term leasehold, Long-term leasehold, and Third-party occupancy have a statistically significant negative impact on the reserve price. We also find that the prices of properties with long-term leasehold are 24.32% ($\exp(-0.2786)-1=-0.2432$) lower than the vacant properties, while the properties with short-term leasehold are 7.8% ($\exp(-0.0813)-1=-0.0781$) lower than the vacant properties. As expected, the prices of properties with long-term leasehold are much more discounted by the district court. The prices of properties with third-party occupancy are 5.1% lower than those of the vacant properties.

Table 5 reports the estimation results of the number of bidders. As mentioned in the previous section, we believe that the land value proxies for the potential number of bidders. Therefore, a

positive sign of Value implies that the number of bidders increases when the number of potential bidders increases. The 1998 year dummy has an insignificant negative sign, while the other year dummies have a significant positive sign. This implies that the 1998 amendment increases the number of bidders. The results correspond to the figure shown in Section 2. We find that the reserve price has a statistically significant positive impact on the number of bidders. A good property with a high reserve price increases the private value of bidders, consequently increasing the number of bidders. This implies that the number of bidders decreases when there are occupants in properties, because all the tenure status dummies have negative impacts on the reserve price. Using the coefficient of Short-term leasehold in Table 4 and the coefficient of Reserve in Table 5, we find that the number of bidders that participate in auctions of the properties with short-term leasehold is 3.8% ($-0.2432 \times 0.7870 = -0.0380$) lower than for vacant properties. In a similar fashion, we find that the number of bidders that participate in auctions of properties with long-term leasehold (third-party occupancy) is 11.85% (2.5%) lower than the vacant properties.

Table 6 provides the estimation results of the auction price. All coefficients are statistically significant, except the constant term. Although the Corporation coefficient is small, we find that Corporation is significantly negative; leading to a lower selling price when joint-stock corporations are the highest bidder. We also find that both the Reserve and the Number coefficients are positive. Properties with a higher reserve price and/or the larger the number of bidders tend to be sold at higher prices. The positive coefficient of Number implies that the 1998 amendments of the foreclosure laws contribute to a rise in the auction price, because its increase the number of bidders in judicial auctions.

From the above discussions, both the first and the second effects have an impact on the auction price. First, the existence of occupants in the properties lowers the reserve price, and this lowers the auction price. Second, the existence of occupants decreases the number of bidders, and this further lowers the auction price. In total, the existence of short-term leaseholders reduces the auction price by 7.9%, which is calculated as follows:

$$\underbrace{(-0.0781 \times 0.9199)}_{\text{first}} + \underbrace{(-0.0380 \times 0.1832)}_{\text{second}} = -0.0788.$$

Similarly, the existence of long-term leaseholders (third-party occupants) reduces the auction price by 24.54% (5.2%). Although the second effect is weak, the existence of occupants has a negative influence in two ways. Occupants are costly people for bidders.

5 Conclusion

In Japan, foreclosure properties sold at judicial auctions are delivered to the buyer with unclear title when occupants exist. This is because the foreclosure laws protect occupants from compulsory execution of auctions. Therefore, it is time-consuming and costly to evict occupants. This paper investigated the effect of these costly occupants on the auction price.

In the theoretical part of the paper, we developed a sealed-bid private model corresponding to the Japanese judicial auction system. The model showed that costly occupants affect the resultant auction price through two channels. First, they affect the reserve price, and this changes the auction price. Second, the number of bidders changes in response to change in the reserve price that is controlled by costly occupants, and this changes the auction price.

In the empirical part of the paper, we uses data of auctions under the jurisdiction of the Osaka District Court for the period 1997–2004. Our estimation model is formed by three equations: the reserve price, the number of bidders, and the auction price. We sequentially estimate this model using the GMM method, which overcomes the correlation among error terms of the three equations. We use three dummy variables that capture the effect of costly occupants: short-term leasehold dummy, long-term leasehold dummy, and third-party occupancy dummy. All these dummies imply that there are occupants in foreclosure properties. The empirical results show that all dummies have a negative effect on the auction price through reducing the reserve price. All dummies also have a negative impact on the auction price through decreasing the number of bidders, although this impact is weak. Among the three dummies, the long-term leasehold dummy has the most negative effect. We also find that the 1998 amendments of the foreclosure laws increase the number of bidders in judicial auctions, and consequently contribute to a rise in the auction price.

In 2003, the foreclosure laws that protected occupants with a short-term contract were

abolished. Our empirical results suggest that these amendments will increase both the reserve price and the number of bidders, consequently increasing the auction price. Therefore it will enhance the efficiency of the real estate market. Occupants who have a long-term contract have the most negative effect on the auction market, and are still protected by the foreclosure laws. Amendment of protection laws for long-term occupants is needed.

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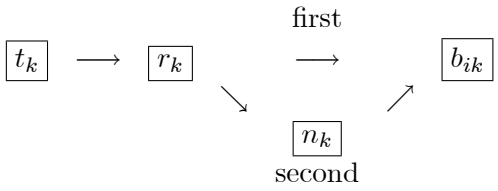

Figure 1. The effect of the tenure status on the bidding price.

Table 1
Definition of variables

Variables	Definition
Reserve	The reserve price in Japanese yen.
Number	The number of bidders in the auction.
Price	The winning bid in Japanese yen.
Vacant	A binary variable indicating property is vacant possession position or occupied by a mortgagor (reference).
Short-term leasehold	A binary variable indicating property with a short-term lease.
Long-term leasehold	A binary variable indicating property with a long-term lease.
Third-party occupancy	A binary variable indicating property is occupied by a third party.
Delinquency	The amount of delinquency in Japanese yen.
Failure before	Number of times that a property fails to sell at auction before 1998. Auctions in 1997 and 1998 are included.
Failure after	Number of times that a property fails to sell at auction after 1998.
SRC	A binary variable indicating a property whose main frames are made of steel-reinforced concrete.
Others	A binary variable indicating a property whose main frames are made of another construction material (reference).
Floor	Number of floors in the condominium.
Size	Floor size of a property in square meters.
Age	Age of property in years.
Distance	Distance to a nearby train station in meters.
199# (200#)	A binary variable indicating auction operates in 199# (200#). 1997 is a reference year.
Value	The average assessed value of land in a ward where a condominium exists. Japanese yen per square meter.
Individual	A binary variable indicating the successful bid is by a private person (reference).
Corporation	A binary variable indicating the successful bid is by a joint-stock corporation.

Table 2
Summary statistics

Variables	Mean	Std. Dev.	Min	Max
Reserve price	8,382,795	5,241,847	720,000	64,050,000
Number	7.2919	7.3232	1	99
Price	11,078,112	7,357,561	788,000	109,000,000
Vacant	0.7499	0.4331	0	1
Short-term leasehold	0.1550	0.3620	0	1
Long-term leasehold	0.0329	0.1784	0	1
Third-party occupancy	0.0646	0.2458	0	1
Delinquency	331,367	622,449	0	15,000,000
Failure before	0.0775	0.4818	0	8
Failure after	0.0366	0.2251	0	3
SRC	0.6583	0.4744	0	1
Others	0.3417	0.4744	0	1
Floor	6.1841	3.8183	1	42
Size	55.0898	22.6658	10.9400	385.4500
Age	17.6924	6.4186	1.0000	37.0000
Distance	5.9066	3.8431	0.0125	40.0000
1997	0.1338	0.3405	0	1
1998	0.1126	0.3161	0	1
1999	0.1784	0.3829	0	1
2000	0.1323	0.3388	0	1
2001	0.1307	0.3372	0	1
2002	0.1357	0.3425	0	1
2003	0.1424	0.3495	0	1
2004	0.0341	0.1816	0	1
Value	349,766	76,462	199,455	549,571
Individual	0.7121	0.4529	0	1
Corporation	0.2879	0.4529	0	1
Observations		3251		

Table 3
Mean for dependent variables by type of occupancy

	Observations	Reserve	Number	Price
All	3251	8,382,795	7.2919	11,078,112
		[5,241,847]	[7.3232]	[7,357,561]
Vacant	2430	8,862,434	7.5894	11,680,647
		[5,350,999]	[7.5353]	[7,359,711]
Short-term leasehold	504	6,863,476	6.8988	9,118,119
		[4,780,401]	[6.7476]	[6,336,714]
Long-term leasehold	107	5,262,056	8.5421	7,449,381
		[2,642,838]	[8.3443]	[3,747,903]
Third-party occupancy	210	7,963,762	4.0000	10,498,554
		[4,722,634]	[3.8214]	[9,333,753]

Note: Std. Dev is in squared brackets.

Table 4
Results for the reserve price

Variables	Coeff.	Std. Err.
Short-term leasehold	–0.0813	0.0136
Long-term leasehold	–0.2786	0.0264
Third-party occupancy	–0.0524	0.0191
Delinquency	–0.0060	0.0009
Failure before	–0.0616	0.0231
Failure after	–0.3162	0.0345
SRC	0.0548	0.0100
Floor	0.0552	0.0069
Size	1.0113	0.0104
Age	–0.3722	0.0103
Distance	–0.0208	0.0057
1998	–0.1341	0.0188
1999	–0.2898	0.0171
2000	–0.4280	0.0184
2001	–0.4299	0.0186
2002	–0.4899	0.0184
2003	–0.5587	0.0184
2004	–0.5214	0.0286
Const.	13.1790	0.0543
Adj. R-squared	0.8194	
Observations	3251	

Table 5
Results for the number of bidders

Variables	Coeff.	Std. Err.
Reserve	0.4874	0.0313
Value	0.2078	0.0983
1998	–0.0568	0.0626
1999	0.2413	0.0578
2000	0.7148	0.0654
2001	0.6925	0.0664
2002	0.9248	0.0674
2003	1.1032	0.0725
2004	1.3593	0.1020
Const.	–9.3738	1.3202
Adj. R-squared	0.1158	
Observations	3251	

Table 6
Results for the auction price

Variables	Coeff.	Std. Err.
Reserve	0.9199	0.0053
Number	0.1832	0.0058
Value	0.1009	0.0130
Corporation	–0.0145	0.0053
Const.	–0.0274	0.1684
Adj. R-squared	0.9450	
Observations	3251	