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Determinants of Housing Liquidity in Chinese Cities: Does Market Maturity Matter?*

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Abstract: Housing liquidity measures the ability to convert housing to cash as an important characteristic of housing stock. A simple model of buyer offers' distributions was used to theoretically explore the determinants of housing liquidity in a search process. An empirical ordinary least squares model of the time-on-market was developed using data collected in four Chinese cities (Beijing, Shanghai, Guangzhou, and Shenzhen). The results show that in these four Chinese cities, market maturity dominates the variation of housing liquidity, with the effects of housing characteristics, seller's search cost, search strategy, and market conditions being less significant to the time-on-market equation. These empirical results indicate that the slow turn-over of housing stock may constrain the overall level of housing liquidity in major Chinese cities.

Key words: housing liquidity; housing stock; time on market; market maturity

Introduction

The concept of financial asset liquidity was introduced by Tobin[1] and soon introduced to the field of real assets. Compared to the markets for normal goods and services, liquidity constraints always exist in a housing market (especially in the resale housing market) due to several factors, such as heterogeneity, decentralized transactions, dispersed information, long search and bargaining processes, and inexperienced buyers and sellers.

Housing liquidity has not been studied in China although it is becoming an important practical issue, along with the rapid development of the resale housing market since the late 1990s in Chinese cities. In some major cities, such as Shanghai and Guangzhou, the transaction volume in the resale housing market has reached or even exceeded that of new completions. However, little attention has been paid to the liquidity of resale housing units, with the transaction price still being the only indicator in the market. In fact, it has been proved that the transaction price and housing liquidity are highly correlated, and price alone without considering the liquidity cannot fully explain market conditions[2-4].

This paper presents a measurement of housing liquidity which is then used to examine the determinants of liquidity in emerging resale housing markets in major Chinese cities. The current literature is mostly concerned with the effects of individual attributes on housing units and market conditions, with few studies discussing the impact of market maturity, since most research is based on developed resale markets. However, although the resale housing markets in Chinese cities are developing rapidly, most are still in a very immature stage, with small transaction volumes and poorly-set institutions, which may significantly affect housing liquidity. Therefore, this paper will focus more on the effect of market maturity than on the individual attributes and market conditions.

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1 Definition and Measurement of Liquidity

Although much literature on housing liquidity exists, the studies do not agree on the exact definition of housing liquidity. This paper does not compare these definitions, but only reviews the key, well accepted points. First, housing liquidity measures the ability of housing to be converted to cash. Thus, housing liquidity is an intrinsic characteristic of the housing, rather than of the whole market (but it still may be impacted by market conditions or market maturity). Second, and most importantly, both the time-on-market (TOM) and transaction price should be considered to fully capture the housing liquidity. The transaction price is known to rise as the duration of a seller's search process lengthens. Thus, sellers face the trade-off of maximizing the selling price and minimizing the TOM, so neither the price nor the TOM alone can fully capture the housing liquidity.

Although some researchers take the relative probability of sale in a particular instant of time as the measure of housing liquidity, the expected TOM or similar concepts are more generally used as measures because the TOM is an indicator easily available in the search process and the seller's search cost is highly correlated with the search process duration, allowing a direct connection between the housing liquidity and the search process.

Therefore, the housing liquidity measurement provided by Lippman and McCall[5] is used in this paper. They define liquidity as "the optimal expected time to transform an asset into money with optimality determined by the seller's search strategy". This measurement makes it possible to conveniently examine the impacts of many factors on liquidity based on the seller search theory.

2 Seller's Search Process and an Expected TOM Model

2.1 Seller's search process

In a housing market, property sellers search for buyers at the same time as buyers search for properties until a transaction is completed[3]. This search process may last for a very long time because of imperfect information. Unlike the active search process buyers usually conduct, sellers usually more passively wait for receiving offers and then decide whether to accept or not. Offers may be random and follow a specified probability distribution, for example, a normal probability distribution with certain parameters. Thus, the seller's search process can be viewed as a sampling without recall from the pool of potential buyers and their offers[6].

This sampling process lasts until the seller accepts one buyer's offer. A seller lists the property for sale at a stated price, P_{ls}. Generally speaking, the buyers' offers, P_b, would be no more than P_{ls}; otherwise, the search process will not start. The seller also has a reservation price, P_{rs}, meaning that the seller will accept an offer only if the offer is no less than P_{rs}[4]. That is,

$$P_{rs} \leqslant P_b \leqslant P_{ls} \tag{1}$$

2.2 Simple excepted TOM model

The sampling process above can be simplified as shown in Fig. 1. The distribution of buyers' offers is assumed to be a normal probability distribution, with the transactions approached if and only if any offer falls in the "effective range" (that is, the shadow area defined by P_{ls} and P_{rs}). According to Fisher et al.[4], the final transaction price always exceeds the average offering price, so here both P_{ls} and P_{rs} are assumed to be on the right half of the distribution.

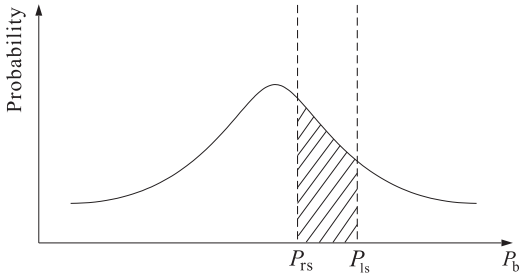

Fig. 1 Distribution model for buyers' offers

Changes of several parameters in the distribution model will affect the expected TOM. Increasing the mean value of the distribution, μ_b, when controlling for other variables, will lead to a right-side shift which then raises the probability that an offer falls into the effective range. An increase in the variance of the distribution, σ_b^2, will reduce the probability in the effective range. An increase in the seller's list price, P_{ls}, will increase the probability. A decrease of the seller's reservation price, P_{rs}, will also raise the probability.

Besides these four elements, a fifth factor that