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Anchoring Effect in China's Real Estate Market

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Abstract: Since the reform and opening up, China's real estate industry has prospered rapidly and has become an important force driving rapid economic growth and promoting urbanization. In recent years, China's real estate industry has entered an inflection point of development, and real estate bubbles and cyclical sharp fluctuations in the real estate market have occurred from time to time. Behavioral finance has provided a new research direction for how to explain this fluctuation. Based on this, this essay uses the classic anchoring effect theory in behavioral finance theory to study the existence and characteristics of anchoring effect in China's real estate market from the micro level, and explains the entire mechanism through three applications. The first application empirically tested the existence of the anchoring effect in China's real estate market, and analyzed the difference between the anchoring effect in the eastern and western regions of China. It verified that the decision of housing prices in the central region was affected by the anchoring effect of the micro subject, while the anchoring effect in the eastern and western regions was not significant. The second application analyzed Hong Kong's secondary residential market, and a statistical model including anchoring effects was also presented in order to study the dynamics of house prices. The third application provides an improved Hedonic model, which combines various literature data to study the influence of age, growth area and other characteristics of home buyers on real estate prices under the anchoring effect.

Keywords: anchoring effect, real estate market, house price

1. Introduction

One of the great lessons of the 2008 international financial crisis is the harmfulness of house price bubbles to the macro economy. As an important asset for enterprises and residents, real estate possesses the dual characteristics including consumer goods as well as investment goods, and its price fluctuations may have a greater impact on the real economy and financial system in depth and breadth than stocks and other financial assets.

Since the policy of reform and opening-up introduced, China's real estate industry has undertaken tremendous changes. However, its development in China has not been smooth sailing, and some serious problems have been exposed beneath the surface of the property market boom. From a nationwide perspective, the development of China's real estate market has shown an overheated trend,

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and the housing price has also experienced abnormal fluctuations, which are mainly reflected in the inconsistency between the increased rate of housing price and growth rate of GDP. Apart from it, high ratio of house price to income as well as large house price fluctuations in different cities have also gained great attention [1]. Most cities in China have excess premium in housing prices, and the cause of real estate price fluctuations has become a hot spot of social concern.

Many scholars have analyzed the causes of housing price fluctuations from the perspectives of real estate market supply and demand, real estate market regulation and China's special national conditions [2–4]. However, they neglect the "human" as the main body in real estate market transaction, thus ignoring the behavior research of micro buyers and sellers in the real estate market transaction. Most scholars' research is based on traditional economic theory, the hypothesis of "rational man". "Rational man" means that people always make decisions based on the principle of utility maximization, making full use of all known information and making unbiased judgments about the future. However, in the real economy, when the "rational man" makes decisions, his decision and behavior violate the principle of utility maximization, so that the economic utility does not reach the optimum. This behavior deviating from the principle of maximization of economic utility is bounded rationality. One manifestation of this bounded rationality in investment is cognitive bias.

Behavioral finance theory holds that investors generally have a certain degree of cognitive bias, which will eventually lead to irrational behavior of investors. Kahneman believes that when people make judgments and decisions, they do not follow the so-called rational decisions, but tend to have a kind of self-satisfaction, especially under uncertain conditions [5]. The existence of cognitive biases makes judgments more concise and heuristic, and "anchoring bias" is a typical one. Indeed, the real estate market is significantly influenced by certain psychological principles and behavioral elements of individuals. Northcraft and Neale argue that agents have an anchoring effect when evaluating real estate prices [6]. Shi et al. studied the formation mechanisms of herding behaviors in the context of of asymmetric information by constructing a 0-1 decision game model [7]. Gao et al. empirically tested herding behavior in the housing market using panel data from 31 provinces (municipalities, autonomous regions) in China from 1999 to 2005 [8].

However, the existing research has following two shortcomings: first, there is no systematic research on the mechanism of irrational behavior in the real estate market. Secondly, because of the great difficulty encountered while collecting relevant data, there is no strong empirical support for the influence of irrational or behavioral elements on housing price fluctuations in current literature.

Based on this, this paper tries to use the classic anchoring effect theory in behavioral economic field to study the existence and characteristics of anchoring heuristic in real estate market from the micro level in China. After that, this paper also considers how these heuristic influences real estate market, especially the fluctuation of housing price. The overall mechanism is illustrated through three applications. The first application uses the vector autoregression to empirically verify the existence of the anchoring effects in China's real estate market and analyze the differences of anchoring effects between the eastern, western, and central regions in China. The second application develops an understandable model using statistical methods including anchoring and loss aversion to clarify the variation of housing prices by analyzing the secondary housing market in Hong Kong. The third application employs the Modified Hedonic Model and the Theoretical Search Model for Buyer Anchoring to investigate various paper data to study the impact of buyer characteristics, such as age and growth region, on real estate prices under the anchoring effect.

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2. Applications

2.1. Application in Housing Price Volatility in Chinese Mainland Real Estate Market

Chinese real estate market has become the leading and mainstay industry which acted a significant role in promoting national economic growth. While the real estate is attached to the land and the land is finite and fixed, it cannot be completely affected by the market mechanism. With the rapid growth of consumer demand and the accumulation of speculation and the investment function under the expectation of people in Chinese cities, the real estate market is no longer a pure physical commodity market, it has gradually become a virtual asset market. The unique virtual nature of real estate makes it impossible for its price to return to the basic value, namely the intrinsic value.

Some scholars asserted that the real estate market in China has not reached the effective market requirements due to its inherent characteristics, the imperfection of the information transmission mechanism, and the lack of an effective operation mechanism. Pan and Wang concluded that China's real estate market was still in an inefficient stage, and the transaction price finally formed in the market did not reflect the information to a high degree through the theoretical analysis combined with an empirical test [9]. Similarly, Qiu and Li also demonstrated that China's real estate market was not efficient through the empirical test results [10]. According to Chapman and Johnson, ordinary people would try their best to save their cognitive resource when making judgements [11]. As shown in Fig.1, this is because when people are faced with insufficient information and lack the ability to process it, they always try to find ways to simplify complicated problems or make a strategic decision only depending on simple and accessible information available to them, and all of these will ultimately lead to cognitive biases. Anchoring bias is one of the cognitive biases.

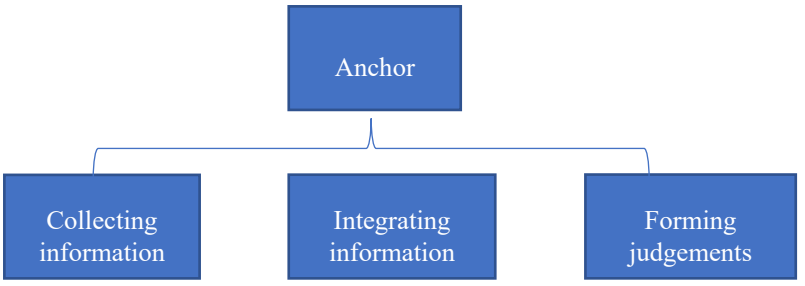

Figure 1: The process of anchoring effect.

Real estate has two attributes which are consumer products and investment products. When the real estate is for an impure asset (self-use real estate) market, the combined effect of the dual attributes of investment and consumption leads to particularity in the use for residential consumption. From the perspective of real estate as a pure asset (investment real estate) market, various psychological factors such as judgments, expectations and emotions formed by investors during the transaction process will affect their behavior, resulting in the entire market deviating from the fundamentals of the real economy and oscillates sharply. Another main reason for anchoring behavior is incomplete and asymmetric information in the real estate market, participants cannot obtain sufficient information, and the information between buyers and sellers is highly asymmetric. When the effectiveness of the real estate market is weak, and the information transmission mechanism is imperfect, it results in insufficient and untimely published information. Investors will anchor the previous transaction prices as reference points for the current transaction prices, thereby showing anchoring behavior. The VAR model was used to analyze the existence of anchoring effect in China's real estate market [12]. The experiment included these following steps: Firstly, the Granger causality test was used to verify that

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the change of the real estate market transaction volume preceded real estate price, and the final VAR estimation result was used to test the lagged positive correlation between real estate market transaction volume and real estate price to test whether the anchoring effect exists.

Table 1: Descriptive statistics of the data.

	Variate	Sample	AVG	Variance	MIN	MAX
the National	P	2652	4374.511	3410.051	650.3289	22209.08
	V	2652	24159956	2496963	5100	23800000
East	P	1404	5769.426	4043.801	1076.983	22209.08
	V	1404	2729427	2733150	5100	23800000
Mid	P	624	2711.298	1332.947	650.3289	6195.997
	V	624	2168816	2204528	47600	16300000
West	P	624	2899.171	1242.315	741.91	6417.433
	V	624	1957955	2086896	7450	13100000

Table 2: Results of panel unit root tests on economic variables.

	Testing Method	LLC	Breitung	IPS	ADF-Fisher	PP-Fisher
the National	lnp	-6.28901	-4.85440***	-16.7042***	-365.591***	694.343***
	Inv	-13.4258***	-2.72818***	-13.5794…	-304.871***	917.908***
East	lnp	-4.09745***	-5.46881***	-14.678***	238.82***	332.064…
	Inv	-6.65464***	-1.70474***	-6.86672***	106.020***	446.246***
Mid	lnp	-2.79502***	-2.45001***	-9.46389***	101.508***	182.929***
	Inv	-19.0694***	-1.77311**	-14.3103***	171.524***	249.731***
West	lnp	398539***	-1.78435***	-3.01980***	25.2604***	179.350***
	Inv	1.45726	-1.28279*	-3.43872***	27.3272***	221.931***

*, **, *** indicate stationary at the 10%, 5% and 1% significance levels respectively

Table 3: Estimated results of panel VAR.

	Inp			
	the National	East	Mid	West
Lnv(-l)	0.301227***	-0.0702564**	0.09416***	0.0082298
Lnv(-2)	----	-0.0522693	0.0312033	0.0320357
Lnp(-l)	0.627542***	0.57088***	0.403938***	0.5080872***
Lnp(-2)	----	0.5300592***	0.3984971***	0.4186571***

By analyzing the data and tables above [12], experimenters could draw the following conclusions. Table 1 indicates that the average real estate price in the central and western region were less than that in the eastern regions. The fluctuation range was a step-like decrease in the eastern, central and western regions, and from the perspective of the average transaction volume of real estate, the eastern region has the largest transaction volume, followed by the central region, and the western region has the least average transaction volume. Table 2 suggests that the nationwide variables lnp and lnv were both stationary at the 1% significance level and had no unit root. While the panel data of the two variables (except for individual cases) in the east, middle and west regions did not have a unit root, and they were all stationary time series. Table 3 verifies that from a national perspective, the current

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housing price was affected by the transaction volume of the previous issue, and there was a positive correlation between them. That is, in China's commercial housing market, there was a lagging positive relationship between transaction volume and housing price. At the same time, the experimenters also found that the price has a strong autocorrelation, and investors would adjust the current price according to the historical price of the real estate. The rise in the past price would cause the current price to rise, which was caused by the psychological expectations of consumers. In other words, consumers set their own anchors through such expectations. As for the eastern, central, and western regions, the anchoring effect was dissimilar in different regions. The determination of housing prices in the central region was affected by the anchoring effect of the micro-subject, while it was not significant in the western and eastern regions.

In summary, the anchoring behavior among the main part of consumers and the anchoring effect in the market are the manifestation of the imperfect operating mechanism and development of the real estate market. Targeted recommendations are put forward for investors, real estate developers and intermediaries, and the government. For investors, strengthening the skills of collecting and identifying information and the ability to control cognitive errors and psychological disorders are important. For real estate developers and intermediaries, though strengthening the construction of the credit system of real estate enterprises is tough to some extent, it is worth trying. The government should establish a transparent real estate market transaction information platform and evaluation mechanism. Furthermore, it is responsible to formulate differentiated policies for the development of real estate markets in different regions.

2.2. Application in the Hong Kong Second-Hand Housing Market

An appealing characteristic of Hong Kong’s secondary housing marketplace is its extreme competition [10]. There are a whole lot of customers and dealers with inside the marketplace [13]. Estate sellers' preferred fee is simply 2 according to cent of the acquisition fee (1 according to cent for every client and seller). The aggressive nature of the marketplace makes strategic conduct via way of means of customers, dealers or sellers much less likely, presenting best situations for checking out each cognitive bias.

The assumption is that customers peg the cost of the house to its preceding buy fee. As a prerequisite for figuring out the anchoring impact, the client needs to recognize the preceding buy fee.

In fact, the wants for these records are enormous. Between 2001 and 2010, the common quantity of searches according to year turned into 4.5 million (out of a populace of approximately 7 million primarily based totally on 2011 figures), at the same time as the quantity of second-hand transactions according to *yr* turned into much less than 200,000 [14]. This indicates that customers do take these records into consideration whilst creating a buy decision. The Internet has made it less expensive to get these records. The overall quantity of land sign in searches is at the rise. While the quantity of on-line searches greater than doubled among 2001 and 2010, the quantity of counter searches declined step by step over the equal period. A direct implication of this fashion is that anchoring results have turn out to be more and more crucial over the years.

Using housing transaction statistics from the Economic Property Research Center (EPRC) as the number one statistics source.

Utilizing a pattern of repeat sales, researchers discover each anchoring and loss aversion with inside the Hong Kong secondary housing marketplace. then gifting an easy version to expose the effect of those cognitive biases on residence fee dynamics. In the version, because of those cognitive biases, each fee dispersion and quantity are definitely associated with common residence prices. In addition, taking into consideration loss aversion, a smaller anchoring impact reduces fee dispersion

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and quantity. Researchers firmly trust those findings will guide the crucial function that anchoring and loss aversion play with inside the found residence fee cycles [15].

2.3. Anchoring Effect of Real Estate Market in Taiwan

Home buying always accounts for a large part of a family's total wealth, and it also has a strong driving effect on other sectors of the national economy. With the development of urbanization, the problem of land scarcity is also increasing, which also causes the housing prices in China to soar. In this process, people are very concerned about the house price, topography and other aspects of the house, but ignore the changes and impact of people on the house price.

Anchoring effect is a cognitive bias in which people make decisions about an anchor from the outset, even if it is irrelevant [16]. The following combines anchoring effect with people's psychological changes and living environment, and analyzes real estate from the psychological cognitive deviation of micro subjects in the real estate market. On this basis, we attempt to examine the issue of investor anchoring behavior through the actual transaction records of major dealers in a real estate market in Taiwan.

Previous studies have mainly focused on the anchoring effect of seller's listing price or quotation strategy, while few studies have focused on the anchoring effect of buyer. The willingness and expectation of home buyers to pay can be a way to check the influence of anchoring effect, for example in real estate can provide very strong evidence. To confirm the empirical belief in buyer anchoring bias, the researchers ate a unique hand-collected dataset that provides a wide variety of detailed information about real estate buyers, including but not limited to the buyer's gender, age and address, and living environment. This is according to a study conducted by the University of Gothenburg [17]. This study illustrates how people react to house prices. Young people, those on low incomes and women are more likely to be fixed. Low income also increases the likelihood. Owning one’s own home makes it less likely that his/her expectations will be fixed. Based on detailed quotations and the price of each transaction from 2005 to 2010, the researchers were able to estimate the willingness of such buyers to pay through price concessions.

In sharply contrast, property prices in Taiwan have risen rapidly in the past few years. An unusual phenomenon in Taiwan is that housing prices have risen much faster than household incomes, so the island's housing system has been under pressure from affordability issues. In the past 30 years (1973-2002), the average real growth rate of Taipei's housing price was 7.0%/ year, and the standard deviation was 21.1%, indicating that the proportion of Taipei's housing price was very high. However, during the same period, the household income only increased by 4.4%, with a standard deviation of 6.2% [18].

In addition to the anchoring effect that distinguishes the characteristics of different home buyers, the researchers also explored whether different housing areas and categories were affected by the strength of the anchoring bias. Based on the Modified Hedonic Model, they found that anchoring is a universal phenomenon, and although anchoring behavior exists in different genders, males seem to exhibit less anchoring bias than females.

For buyers, different people will differ in terms of search cost, uncertainty, real estate construction scale, planning and price. The researchers hold marginal search costs constant, which may vary from buyer to buyer. Search costs include travel expenses, assessment fees, field visits, and research into the local population and economic situation. Obviously, buyers from outside areas may consume more time and money, because they have higher search costs, most foreigners will consume extra travel costs, not only that, they also lack all kinds of information to understand the local market.

For example, in mainland China, most buyers in the market are unable to obtain sufficient market information when trading. However, real estate developers have absolutely sufficient market information and advantages in the transaction process. For consumers, developers have more

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information about real estate development costs, while ordinary consumers can only passively accept the information that is difficult to distinguish between true and false in the market. Therefore, in this respect, China's housing market has a very serious problem of information asymmetry. Buyers have few channels to obtain real and effective information. Developers and relevant government departments have a large amount of real and effective information [19].

The analysis draws the following conclusions: First, people of different living environments and genders have very different judgments on housing prices under the influence of anchoring effect. Second, compared with real estate developers and government officials, outsiders and ordinary home buyers have less effective information and are more likely to fall into the trap of anchoring effect. Third, changes in house prices also affect people's preference for the second house.

3. Conclusion

To conclude, the expected differences of market microscopic individuals provide conditions for the anchoring bias behavior and make it possible to generate anchoring effect. In addition, the external environment of China's real estate market, such as the virtualized nature and the information asymmetry of the real estate market also provides an environment for the formation of anchoring effect. By applying the anchoring effect in behavioral finance, it is possible to provide another new researching perspective and tool for the causes and characteristics of price fluctuations in China's real estate market, so that relevant government can formulate reasonable polices and strategies to help China's real estate industry develop healthily and steadily.

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