

Real estate appraisal method and application based on investment model

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Abstract: In actual real estate transactions, leasing, mortgage, transaction, demolition and other related activities are involved. In order to ensure the rationality of these activities in value, it is necessary for market personnel to combine the basic functions and personality of real estate and closely combine the changes of market rules to make the most reasonable valuation of real estate for a certain type of use in a certain area. Based on the investment model, this paper systematically analyzes and expounds the individual contradictions existing in the current real estate appraisal methods, and puts forward an improved method of income sharing method. In-depth study of the effectiveness and rationality of the improved real estate appraisal method. Perfecting the current real estate appraisal theory and constructing an optimized appraisal method are important foundations for improving the quality of real estate appraisal.

1. Introduction

In the modern economy, real estate is not only an important material wealth that can be directly used for production and consumption, but also an important part of family wealth and enterprise assets. Its capital characteristics are also increasing, which makes real estate become another important asset besides financial assets. The capital characteristics of real estate mainly show that real estate can be rented and resold to bring benefits [1].

The income source of investment real estate mainly depends on rental to obtain regular rental income, which is quite different from other types of real estate in terms of market valuation. In common valuation techniques, the cost method, income method and market method are used, among which the cost method itself is not suitable for the valuation of investment real estate [2]. As for the income method, which depends more on the valuation parameters, the impact on the results fluctuates greatly, so when facing the valuation of investment real estate, the market method is a better choice.

2. Definition of core issues of real estate investment

2.1. Types of different real estate investments

From the purpose of real estate investment, real estate investment behavior can be divided into three types: (1) long-term holding to obtain sustained cash flow; (2) Short-term real estate transactions to obtain price differences; (3) For the purpose of asset management, that is, to maximize the real estate investment income by investing in real estate.

The income of real estate investors mainly has two parts: one is the rental income; Second, the benefits brought by the appreciation of the property itself. The longer the investment time of real estate, the greater the significance of rental income to real estate investors; On the contrary, the appreciation of real estate itself is of great significance to real estate investors.

2.2. Basic methods of real estate appraisal

Real estate appraisal is an activity in which professional appraisers estimate and judge the objective and reasonable price or value of real estate at the appraisal time according to the appraisal purpose, the appraisal principles and the appraisal procedures, and on the basis of comprehensive analysis of the factors affecting the real estate price [3]. The appraisal object refers to the real estate to be appraised in a specific appraisal project.

The basic valuation methods and principles are introduced as follows:

(1)Market method

Market method, also known as market comparison method, calculates the value of the appraised object according to the transaction price of similar real estate within the same scope of supply and demand of the appraised object and with the transaction date close to the appraisal time [4]. The applicable condition of market law is that there are many transactions similar to real estate within the same supply and demand range and in the near future at the valuation time. Its operation steps include collecting transaction examples, selecting comparable examples, establishing price comparable basis, correcting transaction prices, correcting transaction dates, correcting regional factors, correcting individual factors, and calculating comparable prices.

(2)Income approach

Income method, also known as income capitalization method and income reduction method, is a method to predict the future income of the appraisal object and then convert it into value according to the rate of return or capitalization rate and income multiplier to obtain the value of the appraisal object [5].

The applicable condition of the income method is that the future income and risk of real estate can be accurately quantified. Generally, it is divided into four steps to collect and verify the data related to the future expected income of the appraisal object, and obtain the income formula of the return rate or capitalization rate and the selection of the income multiplier to calculate the income price. The limitation of income method lies in its high technical requirements in application.

(3)Cost method

The cost method is to calculate the repurchase price and depreciation of the appraised object at the appraisal time, and then subtract the depreciation from the repurchase price to calculate the value of the appraised object [6]. Its essence is to get the value of the appraisal object based on the redevelopment and construction cost of real estate.

The theoretical basis of the cost method is the production cost value theory-the price of a commodity is determined according to the cost necessary for its production. The cost method is especially suitable for real estate appraisal which has neither profit nor transaction.

(4)Subjective tendency of three methods

The subjective performance of market comparison method is that there is no unified model in the main operation links of this method, which depends on the knowledge structure and experience accumulation of real estate appraisers to a great extent. Different appraisers may come to different conclusions when evaluating the same real estate, and there is no way to judge the pros and cons of each result.

The over-subjective performance of income method mainly lies in the calculation of capitalization rate. The current four methods to determine the capitalization rate can not accurately define the risk factors that affect the capitalization rate in practice. The slight difference of capitalization rate obtained by different appraisers according to the same situation will lead to great fluctuation of appraisal results.

The over-subjectivity in the cost method is reflected in the determination of the newness with the objective cost of real estate and buildings. Especially, for a long time, the evaluation of building newness or the conversion of depreciation relies on experienced real estate valuers to conduct on-the-spot survey and make necessary calculations, and then makes evaluation based on personal professional knowledge and rich valuation experience, which is highly subjective.

3. Differences between real estate investment appraisal and traditional appraisal technology

3.1. Different connotations

The purpose of real estate appraisal is to determine the value of real estate at the appraisal time, which is objective, impersonal and independent, while the investment value of real estate is a special value of an investor or a certain type of investors based on different investment needs, which is subjective and personal.

3.2. Different influencing factors are considered in the assessment

The main factors affecting investment value evaluation include the holding period of investors' investment property, tenants, investors' expectation of resale price after the holding period of investment property, proper rate of return, financing conditions, etc. However, the evaluation of real estate market value pays more attention to the normal market performance and market return rate, which is also the reason why it is different from the real estate market value.

The relationship between real estate investment appraisal and traditional appraisal is that there is no difference in property valuation itself, that is to say, the judgment on the market value of property is consistent, but the premise of real estate valuation is normal market conditions; The real estate investment calculation takes opportunity cost as the precondition of evaluation [7]. If we can't judge this investment from the outside of the real estate market, we can only judge the feasibility of the investment from the real estate market itself, without considering the larger premise of this investment, such as the investment of investors' own funds, financing ability, profit-making purpose of investment, length of holding period, change of lease, adjustment of operating ability, etc., which may lead to wrong judgment.

3.3. The selection criteria of parameters are different

In real estate appraisal, the income period usually takes the statutory land use period and or building use period as the income period. However, in real estate investment, due to the depreciation, inflation and uncertainty of future economic policies, the uncertainty of future appreciation income of real estate will increase with the extension of time.

In real estate appraisal, the rate of return is generally determined by market extraction method and risk-free rate of return (safe interest rate) plus risk rate of return, which minimize the opportunity cost from inside the market and the opportunity cost and market risk from outside the market respectively.

Real estate valuation is based on the calculated return rate of all investment, while investors use the return rate of their own funds, which leads to different costs to be deducted from real estate income. The financial expenses of the latter are also one of the costs to be deducted when calculating net income.

4. Improvement and application of income method in real estate appraisal

Smart and prudent buyers buy profitable real estate, in order to pay the profit price and not get the net profit brought by the real estate, that is, the net present value $NPV > 0$ of the buyer. Otherwise, if the buyer is only working for the seller, that is, the net present value $NPV = 0$ of the buyer, the real estate transaction cannot be realized and the fair real estate price cannot be formed.

Therefore, how to avoid discounting "all" net income to the seller and how to make the net present value of the buyer are the key to solve the contradiction.

In order to meet the investment purpose of the buyer, the future net income of the real estate can be reasonably distributed between the buyer and the seller. Assuming that the net income ratio allocated to the buyer is $R(0 < R < 1)$, the net income ratio allocated to the seller is $(1 - R)$. Therefore, the formula of real estate value can be adjusted accordingly.

$$P_{Real\ estate} = \sum_{t=1}^n \frac{(1-R)Net\ gain_t}{(1+Return\ rate)^t} = (1-R) \sum_{t=1}^n \frac{Net\ gain_t}{(1+Return\ rate)^t} \quad (1)$$

According to formula (1), the net present value $NPV > 0$ of the real estate invested by the buyer can be obtained:

$$NPV = -P_{Real\ estate} + \sum_{t=1}^n \frac{Net\ gain_t}{(1+Return\ rate)^t} = R \sum_{t=1}^n \frac{Net\ gain_t}{(1+Return\ rate)^t} > 0 \quad (2)$$

In this case, the income price is fair to the buyer, and the real estate transaction is possible.

The improved income method distributes the future net income of real estate between the buyer and the seller reasonably, which not only meets the investment purpose of the buyer, but also improves the possibility of real estate transactions. Therefore, in this paper, this method is named as "revenue sharing method".

Revenue sharing method is a method to calculate the price of the appraised object by reasonably distributing the expected future revenue of the appraised object between the buyer and the seller. This method is suitable for profitable or potentially profitable real estate types, such as hotels, shops, restaurants, etc.

When using the income sharing method to appraise, the following steps can be taken: First, determine the future income period of the appraised object. Secondly, calculate the future net income of the appraised object. Then, determine the distribution ratio of the net income between the buyer and the seller. Then, calculate the capitalization rate. Finally, choose the appropriate formula to calculate the real estate price of the appraised object.

For example, a hotel was developed and built on paid land. The land used at that time was 40 years, which could not be renewed. It has been used for 6 years. The hotel price calculation process is as follows:

(1) Determine the income period

Since the land has been used for 6 years, and the income sharing law holds that the future factor, not the historical factor, determines the real estate price, the income period of the hotel is:

$$\text{Term of income} = 40 - 6 = 34 \quad (3)$$

(2) Seek net income

It is assumed that the annual net income of the hotel after the appraisal date is 80,000 yuan under normal circumstances.

(3) Determine the distribution ratio of net income

Through a large number of market research and data analysis and calculation, it is known that when the seller sells this kind of hotel to the buyer for investment, the buyer can allocate 4% of the net income and the seller can allocate 96% of the net income.

(4) Calculate the capitalization rate

Taking the recent three-year time deposit interest rate as the safe interest rate and adding a certain risk factor, the capitalization rate is comprehensively determined to be 5%.

(5) Choose formula to calculate the real estate price of the appraised object

Choose formula to calculate the real estate price of the appraised object

$$V = \frac{(1-R)A}{Y} \left[1 - \frac{1}{(1+Y)^n} \right] \quad (4)$$

In formula (4), $R = 4\%$, $A = 8 \text{ thousand yuan}$, $n = 34 \text{ years}$, $Y = 5\%$. Therefore,

$$V = \frac{(1-4\%)A}{5\%} \left[1 - \frac{1}{(1+5\%)^{34}} \right] = 124.36 \text{ thousand yuan} \quad (5)$$

5. Conclusions

Real estate appraisal is a complex economic activity. In order to make the activity efficient, accurate and fair, we must pay attention to the rigor and scientificity of the activity process. In order to meet the investment purpose of the buyer, the future net income of the real estate can be reasonably distributed between the buyer and the seller. Therefore, the current cost method is adjusted accordingly, so that the net present value $NPV > 0$ of the real estate purchased by the buyer is greater than 0. In this case, the income price is fair to the buyer, and the real estate transaction is possible. However, due to the different demands involved, professional appraisers must deepen and

extend the real estate appraisal technology to make scientific judgments on real estate investment, solve problems for customers and provide professional services.

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